THE ELEMENTARY SCHOOL JOURNAL

VOLUME XXV JANUARY 1925 NUMBER 5

Educational News and Editorial Comment

THE UNIVERSITY OF CHICAGO DINNER

The annual dinner of the graduates and former students of the University of Chicago in connection with the meeting of the Department of Superintendence will be held in Cincinnati, on Wednesday evening, February 25, 1925, at the Sinton Hotel. Tickets, which are $3.00 each, should be secured in advance from William S. Gray, University of Chicago.

ALL-YEAR SCHOOLS IN NEWARK

All-year schools in Newark, New Jersey, will continue for another year, at least, according to a recent report. The action of the board of education taken in June to abolish these schools has been rescinded, and a committee, consisting of two members of the board of education, the superintendent of schools, and two other persons not connected with the school system, has been appointed to make a report to the board of education with recommendations. It is said that this action came as the result of numerous protests from citizens against the earlier action of the board.

The Newark experiment has been watched with great interest in

all parts of the country. During the first years of the experiment the reports were so optimistic that it seemed not unlikely that the Newark example would be followed by other cities. The action of the board of education to abandon the plan was distinctly discouraging to other school systems which had been gradually approaching the all-year school by enlarging their summer schools. Evidently there is a difference of opinion in Newark with regard to the success of the plan. It is to be hoped that a careful record will be made public after the next trial so that other school systems may derive full benefit from the experience of Newark.

EDUCATION A FUNCTION OF THE STATE

James F. Abel, of the United States Bureau of Education, contributed to the November issue of *School Life* the following statement regarding a highly important decision of the Supreme Court of Oklahoma:

A judicial decision of remarkable significance was rendered by the Supreme Court of Oklahoma on September 9 in upholding the validity of an act appropriating $650,000 to aid in paying teachers' salaries in districts that had levied the constitutional limit of local school tax and still could not maintain school for an eight-month term.

The court held that the burden of education rests on the state; that such an appropriation is not so much state aid to districts as it is part of the fulfilment of the obligation to maintain a system of public schools placed upon the state by its constitution; that district tax levies are in the nature of aid to the state; and that the limit of district tax having been reached, the state must "carry on" to the point where a system with some degree of uniformity and equality of opportunity is maintained.

The constitution of Oklahoma limits the local district tax for school purposes to 15 mills. The assessed valuation in many districts of the state is so low that the proceeds of the 15-mill tax, together with the apportionment from state sources, is not sufficient to pay for a school term of eight or nine months. An amendment to increase this to 25 mills was voted upon in 1922 and defeated. The legislature of 1923 appropriated $650,000 to aid weak districts to complete the 1922–23 term. A similar appropriation of $950,000 for 1923–24 was vetoed by the governor. In the spring of 1924 it became manifest that very many small schools would be forced to close prematurely if state aid were not forthcoming. Teachers were advised to continue their work in such schools in the belief that something would be done to enable them to be paid. The legislature in special session last spring passed a bill appropriating $650,000 to aid in paying teachers' salaries in the weak districts so that they might have the

eight-month term. The money was not available until ninety days after the passage of the act. Many of the schools remained open; the term was completed; and the teachers did the work with the expectation that their salaries would be paid for the additional time from the $650,000 appropriation. Five thousand, two hundred teachers and 176,800 children were affected. Terms were lengthened in 1,065 schools.

The validity of the act, House Bill No. 19, was tested in the District Court of Oklahoma County. It was sustained there and the action dismissed. Later the case was taken on appeal to the supreme court.

The main grounds of attack were that the act was unconstitutional because the state was assuming the debt of a political subdivision and because the act was special in its nature. Further objection was raised that the fund from which the appropriation was to be paid was not named.

The supreme court decided that the act was general, since it extended aid equally to like classes similarly situated; that failure to recite the particular fund from which the moneys are to be paid did not invalidate the act; and that the state was not assuming an indebtedness of the district, because no district could legally contract a debt for teaching service beyond the amount of its funds.

The court took its most decisive stand on this last point and placed the responsibility of education directly on the state, not on the district.

A COUNTY BUILDING PROGRAM

It has become fairly common for city school systems to compile figures showing the probable growth and distribution of population and to work out on this basis future plans for school buildings. Such building surveys are not common for county school systems. One has been made for Cuyahoga County, Ohio, however, and is reported in a very attractive pamphlet of fifty-two pages, with the enticing title, *Save $2,000,000 on Better Schools in Cuyahoga County.*

The plea for economy ought to attract the attention of the taxpayers, especially as this plea is supported by maps and concrete statements showing how better conditions can be insured if the people will adopt the plan suggested.

The following paragraphs summarize the requirements for 1940 so far as the elementary schools are concerned and tell how a saving may be made:

It is not necessary to enumerate here the number of school buildings that will be needed for each district. The map shows that. The problem is sufficiently emphasized by noting that a total of thirty-three new elementary-school buildings will be needed in the county school district. Moreover, in addition

to this, many, if not all, of the present buildings will have to be enlarged. More important still, it will be noted that ten of these new buildings, or one-third of them, overlap present school-district boundary lines.

If these district boundary lines are not changed, at least five more buildings will have to be built. In addition to the useless and unnecessary expense for these buildings, the following disadvantages would result: (1) Many children would have too great distances to walk. (2) Some buildings would be too large and others too small, thus greatly increasing overhead costs. (3) It would be impossible to organize classes in proper numbers and like groups.

By proper redistricting or combining of districts, at least five new elementary buildings can be saved. Each building, at a conservative estimate, will cost at least $200,000, including the site. The total saving will, therefore, be $1,000,000 in elementary buildings alone. To this may be added $150,000 which can be saved by purchasing new sites now while they are available and reasonable in cost. At the very least, $500,000 can be saved in interest on the $1,000,000 investment. This is a very conservative estimate, because in most cases the total interest amounts to practically as much as the original bond issue. Even with this conservative estimate, the figures above show a definite saving of $1,650,000 for elementary buildings alone.

That the spread of population does not follow present school-district lines is shown in Rocky River and Fairview. The population will be so located that, of the eight new buildings required, three should be located practically on the present school-district lines.

Like facts and suggestions are presented for the high schools. Recommendations are also made for the improvement of the taxing systems of the state and county in order to insure proper funds for the conduct of the schools.

HEALTH EDUCATION

For some years past a joint committee of the National Education Association and the American Medical Association has been actively promoting health education in the public schools. This committee has published several studies showing the health conditions in schools of different types of communities and furnishing material which teachers can use in their classes. This committee has now prepared and published a handbook for teachers, setting forth an elaborate program of health education. Much of the material is in outline form, and each section includes bibliographical references.

Paragraphs from the Foreword describe the handbook as follows:

At the annual meeting of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical

Association on February 28, 1922, in Chicago, unanimous support was given to a resolution that plans should be made for the preparation of a program of health education for public schools and teacher-training institutions of the country.

At a second meeting of the committee in April, 1922, the plan was developed, which has since been carried out, for the appointment and organization of a technical committee of specialists, the function of which would be to initiate and formulate a tentative draft of the report and to submit it to the joint committee, which would then act as a reviewing committee before submitting the report to the National Education Association.

Accordingly, a technical committee of twenty-seven specialists was appointed, and this committee has prepared most of the material for the report. . . . .

During the preparation of the report, over seven hundred requests for health-education materials were sent to state, city, and county superintendents and to teacher-training institutions. About one hundred and fifty responses were received from school systems conducting health-education programs, and from them a large amount of very helpful material was collected. . . . .

During the last ten years there has occurred a great wave of intense interest in, and intensive development of, health work in the schools which has been accompanied by unprecedented stimulation of interest in health by organizations outside of the schools and the contribution to the schools from many outside sources of a fascinating and confusing mass of materials, ideas, and devices for health teaching. This has made it desirable and necessary that the educational forces within the schools should study, interpret, and co-ordinate the aims, materials, and methods in the field of health education so that the schools of the country may be provided with an educationally sound program of health teaching. To do this completely would require years of thorough investigation and experimentation of a kind which it has not yet been possible to carry on. However, until such investigation may be undertaken, it is hoped that this report may provide the best available guidance to the schools of the country relative to health teaching in the immediate future.

It is not the purpose of this report to provide a single-minded, unified statement regarding health education; the aim is rather to supply an authoritative compilation of technical statements and a consensus of professional opinions relative to this field of education.

Copies of the handbook can be secured from Dr. Thomas D. Wood, 525 West 120th Street, New York City.

SUPERINTENDENT McANDREW'S REPORT

William McAndrew, superintendent of the Chicago public schools, has presented his first report to the board of education. This report contains many stimulating and suggestive paragraphs, some of which may be quoted as follows:

Department aims.—Compared with the bewildering collection of educational definitions invented by various lecturers, the fundamental law of our state is simple. The constitution promises that we "shall provide a thorough and efficient system of free schools whereby all the children may receive a good common school education." What the purpose of this enactment is appears from its parent statute, the early territorial ordinance providing that "schools and the means of education shall forever be encouraged as necessary to good government and the happiness of mankind." The framers of the ordinance, who also drew the Federal Constitution, proposed schools as an American agency for the same aims as the political system: "to form a more perfect union, establish justice, insure domestic tranquillity, provide for the common defense, promote the general welfare, and secure the blessings of liberty."

Commonplaces.—The repetition of these trite observations here is due to a belief that even the local system is subjected to a tendency remarked by many observers of other school organizations which results in conducting the schools as though they were entirely for the children, for helping the pupils to make a living, to get on in the world, to profit. The proponents of our law, which taxes everyone for the education of the children of only some, promised that the schools would be conducted for the benefit of the the whole community. The state constitution's pledge of a thorough and efficient system for a good common school education requires that reading, writing, arithmetic, and the specific teaching detailed in the state law shall not be superficially done and, furthermore, that the young citizen supplied with these rudiments of an education shall be trained, as best we may help him, to feel his obligation to the community which foots the bills.

Thorough and efficient common school education.—To carry out the promise of the state constitution, there must be in every city systematic watchfulness, correction, and encouragement. There is so large a proportion of citizens who expect the human output of the public schools to be able to read, write, spell, punctuate, and to use figures accurately that the training of efficiency in this line is extensively regarded as a duty of a school system. We need decided improvement in this. In March, I asked you what percentage of the highest class in an elementary school should, if not hurried, be able to add the following:

89523
45988
83777
62000
726
89451
26712

Your members replied: "A hundred per cent; all of them, of course." I tested 5,583 such highest grade pupils; 3,686 arrived at the correct sum. This is 66 per cent of the number tested. The schools examined showed from 32 per

cent to 95 per cent of their highest class securing a correct result when not pushed. In March, I tested in easy reading 8,880 pupils of the highest class in elementary schools selected by lot in each district. The results were, on the basis of 100 counts perfect: 29 per cent scored 60 or less (poor); 61 per cent scored 61 to 89 (fair); 10 per cent scored 90 to 100 (good and perfect). In March, I tested for penmanship 880 pupils of the highest grade in the same elementary schools with these results: 80 per cent scored 60 or less (poor); 18 per cent scored 61 to 89 (fair); 2 per cent scored 90 to 95 (good).

Outside reputation.—Not to confine ourselves to the few subjects tested, which are old-fashioned criteria and not perhaps appertaining to the most valuable services our schools perform, here is the summary of an inquiry made, but not yet published, by E. D. Hellweg for a school-visit directory, compiled from information furnished by 175 school superintendents distributed throughout the United States. The school systems are arranged in the order of the number of votes received.

a) *For efficiency of organization:* Detroit, Denver, Cleveland, Oakland, Rochester, Des Moines, Berkeley, Kansas City, Springfield (Mass.), Louisville, Cincinnati, Pittsburgh, Omaha, Buffalo, El Paso, Framingham, East Orange, Montclair, Trenton, Akron, Toledo, Gary, Tacoma. (Chicago not discovered.)

b) *Instruction of cripples:* Chicago, Cleveland, Newark.

c) *Military training:* Chicago, Cleveland, Newark, Washington, Boston, New York.

d) *Playgrounds:* Chicago, Oakland, Gary, Detroit, Milwaukee.

e) *Visual instruction:* Detroit, New York, Los Angeles, Berkeley, Chicago, Newark.

For each of the following enterprises Chicago gets two votes: classes for blind, for deaf, for tuberculous, community use of school buildings; one vote for citizenship training and vocational instruction.

Chicago is not known to the 175 schoolmasters for any excellence in reading, writing, composition, arithmetic, or geography, being overshadowed, according to the count by Kansas City, St. Louis, Detroit, Youngstown, Des Moines, and twenty-six other places. Nor have any of these observers considered us worth visiting for kindergartens, health training, instruction of subnormals, experimental classes, testing and follow-up, junior high schools, thrift training, school equipment and buildings, music, retirement system, freedom from politics.

Absent treatment.—I have not been able to give satisfactory supervision sitting in an office attending to callers, answering letters, by attending committee meetings, or by addressing teachers, citizens, or clubs. The war degraded the schools. They are not in a normal situation. They need to be visited, observed, shown what to stress and what to let go. There is too much arm-chair supervision in school systems, according to the makers of books on management.

Too much supplementary occupation.—From February 1 to June 30 I visited only seventy-one schools. That is inadequate. The count made by my office force shows that in April, the month selected for measurement, 2,230 pieces of mail addressed to the superintendent were received and opened; 1,535 were referred to others to answer; 695 were read by the superintendent and answers indicated; 127 reports were made or examined by the superintendent; 723 callers were listened to by him; 71 telephone calls were answered by him; 34 meetings were attended by him. At this rate the year's grist for the superintendent would be: 26,760 pieces of mail; 8,340 letters handled personally; 8,676 persons received, interviewed, etc.; 1,524 reports made or examined; 852 telephone calls answered; 408 meetings attended.

It is no fault of the members of our school system that this amount of business is routed to one person. They have not been shown that they can get quicker and more satisfactory service by going to some officer given responsible charge of a specialty.

Needs.—Your newspapers in January carried much matter regarding education in Chicago. The gist of it was that what is most needed is order. Organized disloyalty and mischievous suggestion by a minority have lowered respect for the pursuit of teaching and made Chicago education notorious here and elsewhere. At the same time there has persisted in school circles a practice of taking all problems, however unimportant, to the superintendent, as if to a potentate who by word or nod can settle everything.

Not a one-man concern.—Other school systems suffer from the tradition that ever teacher with a special idea or complaint, every principal, every inventor of a new device or author of a new book, every friend of an applicant for promotion should properly take the case to the "head man." Since beginning work here, I have, in deference to Chicago usage, received all comers. It is a large price to pay for a reputation of approachability. To each visitor it has been explained that a specified officer is employed to handle almost every case. Business has slowly adjusted itself to a more expeditious, satisfactory, and less wasteful conduct. A system directly touching a total of 545,929 pupils and paid members must work clumsily on the old village conception of a one-man affair. It must adopt the motto of other big businesses: "organize, deputize, supervise."

PRIVATE AND PAROCHIAL SCHOOLS

The voters of Michigan and Washington decisively defeated the proposed constitutional amendments prohibiting attendance on private schools.

The *Free-Schools Exponent*, which is a special publication representing the interests of the private and parochial schools of Michigan, is authority for the statement that in Michigan approximately two hundred thousand more votes were cast on the amendment in

1924 than on a similar amendment presented to the voters in 1920. The distribution of the votes was almost exactly the same in the two cases, namely, 36 per cent for the amendment and 64 per cent against it.

It is reported that the advocates of the amendment are quite determined to bring up the matter again and that they are greatly encouraged by the gain made in the number of voters who were sufficiently convinced of the importance of the issue to cast ballots.

In the meantime, it may be appropriate to reiterate the doctrine which has been advocated before in the *Elementary School Journal*, namely, that supervision by the state will remove a large share of the ground for the contention that parochial schools should be abolished. Each time such a statement is made, the editors of this *Journal* receive letters from friends of the parochial schools, saying that state supervision is not needed because these schools are superior. The writers of such letters are always asked for permission to print them in full, and these requests are always refused. If the parochial schools do not need supervision for their own sake, they ought to accept it for the sake of the public peace of mind. Michigan has a law providing for such supervision. Why not end the controversy by putting it into effective operation before a new amendment is drafted?

DEVELOPMENT OF TEACHER-TRAINING INSTITUTIONS

The statistics of registration in the normal schools and teachers' colleges of the country show encouraging increases in student population. The number of students in all courses in these institutions was about the same in 1914–15 as in 1899–1900. The registration for 1914–15 was distinctly less than the registration for 1904–5. In 1914–15, 118,960 students were enrolled; in 1921–22, 232,144 students.

It is not equally encouraging to note that a great many of the students in 1921–22 were registered in courses other than normal courses; 37,610 students, or 16 per cent of the total, were enrolled in courses which cannot be classified as normal.

Discouraging also is the small number of graduates yielded by the normal courses. In 1921–22 there were 26,747 graduates from

normal courses, only 3,334 of whom were men. The number of graduates in such courses has increased somewhat in twenty years; there were about two and one-half times as many graduates in 1921–22 as in 1899–1900. In the matter of revenues, however, these institutions were supplied with $41,239,750 in 1921–22 as contrasted with $5,231,856 in 1899–1900. In other words, while producing only two and one-half times as many graduates from normal courses, these institutions received approximately eight times as much financial support.

The normal schools of the country have long been a serious educational problem. They are isolated and out of relation with the other higher institutions. Lately they have determined to take on the form of colleges and to grant degrees. Their graduates from normal courses supply somewhat less than 13 per cent of the teachers needed to recruit the teaching force of the country each year, and the cost per capita, computed by dividing the total receipts of these institutions by the total student population, is $178. If the cost per capita were computed for graduates only or for students in normal courses, it would be much higher.

It has been suggested that teacher-training is a national function rather than a function of the state. Certain it is that the interstate commerce in teachers is very active. Such figures and facts as have been cited make it clear that there are problems not yet solved by the present system and lead to the conclusion that the faculties of the teacher-training institutions should be encouraged to study carefully the trends of development in these institutions.

THE PLATOON SCHOOL

Discussion of the platoon school is being carried on in many quarters. A report prepared by G. W. Diemer of Kansas City, Missouri, and published as a bulletin of the United States Bureau of Education under the title, *A Platoon School in Kansas City, Missouri*, contains general information about the growth throughout the country of the movement to organize schools on the platoon plan. Mr. Diemer says:

> Platoon organization is attracting nation-wide attention and, in principle, is being widely accepted. The number of platoon organizations in the United States is growing so rapidly that any list of such schools would be incomplete

by the time it could be published. In a study recently made by Miss Alice Barrows, specialist in industrial and economic relations in education, United States Bureau of Education, it was found that sixty-one cities in twenty-three states have some form of platoon organization in one or more schools.

Defining a platoon school, Mr. Diemer makes the following statement:

Inasmuch as no two cities having platoon organization include the same details or work out details in the same manner, any definition can only set forth the general principles of the plan. These general principles are twofold. Platoon organization means, first, that administrative plan by which the school is grouped into two major divisions and the program of work so arranged that while Division A is doing work in the tool subjects, Division B is doing work in the special subjects, and vice versa; second that diversification and enrichment of the curriculum which permits more time and attention to the highly socialized, or expression, subjects.

John H. Finley, formerly commissioner of education in the state of New York, made, in an address, a very pointed answer to the slogan which is often used by those who are opposed to the platoon plan. Mr. Finley, in discussing the crowded conditions in the schools of New York City, said:

A seat for every child is a very low ideal for an educational system, though it sounds like a very high ideal. This is not a controversial subject. It is so low an ideal that it is likely to wreck a system. It makes the log in Garfield's definition of an education more important than the teacher. . . . . What the constitution of this state guarantees—or used to when I was commissioner of education—is an education for every child and not a seat.

Finally, a news item issued by the Bureau of Education indicates that school systems are continuing to adopt the platoon plan as a means of meeting the problems of congestion.

Nine cities have recently notified the Bureau of Education that they have organized schools on the platoon or work-study-play plan. This makes seventy-two cities in all in which such schools are maintained. One out of every six cities with a population of 30,000 or more has schools conducted on this plan. Of the great cities of the country, Detroit has 80 platoon schools; Philadelphia has 43; Pittsburgh, 38; Dallas, 27; Birmingham, 23; St. Paul, 18; Newark and Akron, 17 each; Sacramento, 13; and Dayton, 8.

STATE PROPAGANDA THROUGH THE SCHOOLS

An experiment in civic training launched by the Virginia State Chamber of Commerce is described as follows in a leaflet which has just been issued:

The immortal Caesar, who described Gaul as divided in three parts, if he should write about Virginia, mother of presidents, and the veritable heart of the United States of America, would have to say that the Old Dominion is divided in five parts. Not unlike the task of the great Roman, therefore, is the work of the Virginia State Chamber of Commerce, which today through the schools of the state plans to unite Virginia into one mighty commonwealth through its "Five-Five Know Virginia" program.

For years the Virginia school system has felt the need of a flexible, concise and accurate compilation of data on modern Virginia, a subject about which there is no textbook and about which every student after graduating feels a keen need. School authorities realize this, and when the Virginia State Chamber of Commerce proposed that it sponsor the issuance of a series of unbiased, impartial, and non-political studies on Virginia commerce, taxation, agriculture, industry, and civics, the State Board of Education endorsed the plan. This work is proceeding with the approval and assistance of the State Board of Education.

In this course of studies in the schools, it will be the aim of the Virginia State Chamber of Commerce to bring before the students of the great Southwest the wonders of the Tidewater, to familiarize the Tidewater with the Valley, and the Valley with the Southside of Virginia, and on around, so that when the children leave school they will be equipped with a thorough knowledge of the advantages every section of their state has to offer and will know Virginia's needs.

The first documents issued will be on commerce and the development of Hampton Roads as a world port and will briefly, but thoroughly, outline the reasons why the development of Hampton Roads—"Virginia's greatest asset"—will help not only the great Tidewater section, but the Valley of Virginia, the vast Southwest, the Southside, and the Piedmont. Documents covering every phase of Hampton Roads in an understandable and non-technical style will be supplied the children of Virginia, without cost, through the division superintendents of schools.

Agriculture will be covered in another set of documents. Some of the best minds of Virginia will co-operate in the preparation of an honest, impartial study of state and local taxation for the instruction of the school children. Industrial studies of Virginia, outlining the possibilities for utilizing the state's natural water-power resources and the co-ordination of all power-generating systems to furnish the necessary cheap power required for the state's proper industrial development, will be made and the reasons pointed out why these things are necessary.

Under civics, three complete courses will be worked out: one on state, another on municipal, and a third on county government. These studies, it is hoped, will lead to a wider understanding of Virginia's governmental needs and promote efficiency and economy in government through a higher appreciation of the duties and responsibilities of citizenship.

Co-operating with the Virginia State Chamber of Commerce in this work will be the colleges and universities of the state, which will prepare much of the data. The teachers' colleges also will help by adapting the prepared documents for use in the elementary schools. New documents, covering new developments, will be prepared and issued from time to time by the Virginia State Chamber of Commerce.

With the co-operation of various civic and business organizations throughout Virginia, able speakers in every section of the state will explain the facts about modern Virginia, set forth in these documents, to the children by supplementary lectures; and at the end of each session, prizes will be awarded for the best essays written by the school children on assigned topics.

This service is being undertaken by the Virginia State Chamber of Commerce not only to teach the children of the state about Virginia but to arouse the interest and to stimulate the enthusiasm of all Virginians in the great cause of Virginia.

One is inclined to doubt whether this is the way to give the children of Virginia information about the state. The project seems to savor very strongly of propaganda. It may be better, however, to introduce propaganda into the schools than to deprive them of the information.

ADULT EDUCATION

Among the agencies which aim to provide education beyond the school period, the public library is undoubtedly the most active and the most efficient. In a recent report of the work of the public library of Grand Rapids, Michigan, Samuel H. Ranck, the librarian, presents the case for better support of this institution as follows:

The public library in America has long been the country's leading agency for adult education. People who are not familiar with its work (and most people are not) when told of it are amazed at the wide range of its activities, the number of persons reached, and the vital part that the resources and services of the library play in the everyday life of the community. This is particularly true of the very considerable number of young men and young women who continue their education after leaving school or college through the books and periodicals which they find in the public library, and it is especially true of the many young persons who never had the chance to go to college. Surveys which have been conducted in a number of cities with reference to the use of leisure time all show that reading occupies first place in all stages of life—childhood, youth, manhood and womanhood, and old age. In the Cleveland Foundation survey, theater-going was second and games and sports third in the use of leisure. For the masses of our people the public library must always supply a very great part of their worth-while reading.

The industrial and financial history of this country is full of examples of great inventions, industries, and enterprises that have been built up around ideas which young men with limited formal education in the schools found and developed through the inspiration and knowledge they gained from the material on the shelves of public libraries. Edison and Henry Ford are two of the most conspicuous examples of the important part which a Michigan public library played in the early development of their contributions to our modern civilization.

When we think of the large number of persons reached in this way and what the library service may and does mean in our modern life, the amount of money expended on public libraries for such educational work seems paltry indeed as compared with similar sums that are expended on our colleges and universities. The colleges and universities, being old institutions as compared with the public library, have established themselves in the minds of the people, so that the value of their contribution to our modern life is not doubted for a moment. The public library needs to be established in the minds of the people in a similar way.

During the past year your librarian has made some study of the relative expenditures for colleges and universities and the libraries in a number of communities. The amount of money (in round numbers, $122,000) that the Library Board is asking the City Commission to place in the tax budget this year for the operation of the Grand Rapids Public Library is almost identical with the amount of money raised on our last winter tax rolls from the citizens of Grand Rapids to pay for one year's operation of the University of Michigan. In counting the names from Grand Rapids in the last available catalogue of the University of Michigan, it is found that there are less than 400 students, so that the amount that this community contributes directly for the students from this city at the university for the year is considerably over $300 each.

There are nearly 35,000 registered card-holders in the Grand Rapids Public Library, and the amount we are asking for the operation of the Library to be placed in the budget this year is not quite $3.50 for each registered card-holder. This takes no account of the thousands of people who use the library who are not registered as borrowers. I am fully convinced that the splendid work of the University of Michigan and the other colleges and universities of the country is worth all they cost and more, but I am also convinced that the work of the library, which directly touches a hundred people where the university reaches but one, is no less important and that special efforts should be made to bring this fact home to the community, so that mass education as it functions through the library may go forward in accordance with the needs of the millions.

LANGUAGE AS A HIGHER FORM OF REACTION[1]

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There are two strikingly different attitudes toward language to be found in present-day educational discussions. On the one hand, there is a clear recognition of the fact that training in language is the most fundamental task of the school. A school without reading is quite unthinkable, especially in this country where the use of textbooks is universal in all grades above the primary and where the major function of the primary grades is to prepare pupils for the use of books. On the other hand, with all of our American devotion to reading, our educational discussions frequently dwell at length on the dangers of overemphasis on words. Such terms as "mere verbalism," "formalism," and "empty theory" are used to express contempt for a type of education which deals chiefly with language and fails to cultivate direct contact with things and to produce practical skills in pupils.

It is the purpose of this article to seek, through an inquiry into the nature of language, an explanation of the apparently contradictory attitudes described and to offer some suggestions as to the psychological theory which can be adopted as a safe guide to educational practice.

The important fact about a human being which it is necessary to understand if we are properly to locate language among his abilities is the fact that language is one of the many forms of reaction of which the individual is capable. If an impression strikes the eye or the ear of a man, it may lead to one of many responses. The person in question may reach out his hand and grasp the object which impressed him. He may turn and walk away from it. He may make a remark about the object and otherwise neglect it. He may ask someone else to do something with the object.

Not only is human nature capable of a great variety of reac-

[1] This is the fourth of a series of articles on educational psychology.

tions but these reactions are of widely differing degrees of complexity. People can deal with sensory impressions in ways that are skilful or untrained to a degree infinitely beyond the ability of any other living species. Not only so, but human reactions are often of a highly indirect type. Think, for example, of the way in which an animal goes about getting its food and of the way in which civilized man earns his livelihood. In a broad general sense, both the animal and the man are impelled by hunger to seek food. But the animal has only a few very simple and direct methods of satisfying its needs. The dog chases the rabbit and devours it. The man, on the other hand, even if he is trying to capture the rabbit, goes about the matter in a very different way. He uses a weapon or sets a trap or ultimately domesticates the animal which he plans to use for food. Animal reactions to sensory impressions are direct and simple, while the reactions of man are, for the most part, indirect and complex.

This contrast can, perhaps, be made more vivid by dwelling on the fact that animals do not use tools. The use of a tool requires attention to the object which is to be attacked and to the tool with which the attack is to be made. The two centers of attention are beyond the abilities of animals. The following experiment was tried with a monkey. A banana was placed just out of the animal's reach. It put forth every effort to secure the food but was not successful. At this stage a demonstration was given by the experimenter of the way in which a stick may be used in order to extend one's reach. The monkey became interested in the stick and was finally allowed to take it. The stick, however, absorbed all of the monkey's attention. It was not used as a tool because such use would require attention to both stick and banana, and this double attention was beyond the animal's ability. The fact that animals do not use tools is to be explained by the limited range of their reactions. Their behavior is simple and direct and restricted to a few modes of response.

There is a definite structural reason for the limited range of animal behavior. The nervous systems of animals are, as contrasted with those of human beings, very simple, and the paths leading through the simpler nervous systems are short and direct. Before the more elaborate forms of action of which human nervous systems

are capable could appear in the world there had to be evolved a complex central nervous system with elaborate organs capable of providing for the multiple forms of attention and adjustment which are characteristic of human reactions.

A moment's consideration will convince even those who have never studied nervous systems that there is within the human organism a place where complex forms of behavior are prepared. Let us think of both the animal attitude and the human attitude toward a sharp stone. The animal has a direct and very simple attitude toward a stone which cuts it. The animal growls and passes on. To it the sharp stone is a source of irritation, nothing more. The human genius who first rose above the animal level and thought of the sharp stone as a tool with which to reinforce his own teeth and nails had what we call an imagination. Through the use of imagination, this human discoverer saw the sharp stone in relations in which nature had never put it. This exercise of imagination requires a higher form of nervous organ than any possessed by the animals.

The higher centers in the human nervous system are to be characterized as indirect centers; that is, they provide for modes of behavior which are not directly dependent on sensory impressions. The cerebrum, which is the highest part of the brain, is not directly connected with the organs of sense. The sensory impressions which come to it are relayed through lower centers. The evident function of this indirect center is to provide for combinations of a higher order, where sensory impressions are united on a large scale, where attention is distributed over a number of objects, and where responses are prepared which are not simple reactions to single sensory impressions.

No one who has considered the comparative facts which distinguish animals and human beings in the use of tools and in the structure of their central nervous systems can fail to realize that the fundamental requirements of human education are related to the higher, indirect forms of behavior, the centers for which are located in the cerebrum. It is true that a human being must have the lower, direct forms of behavior in order to survive. There must be in human life, as in the life of all animals, the simple, direct form of reaction which appears when one dodges in order to avoid

approaching danger; there must be ability to seize and masticate and swallow food. There must be ability to move about from place to place through the use of the limbs in the simple acts of locomotion. Human experience involves many of these direct adjustments, but these are not the typical facts with which education deals. Education trains the child to take a tool into his hand. The moment the child begins to use the tool he breaks away from the animal kingdom and becomes a human artisan. That moment his simple reactions sink into relative unimportance. He begins to use his higher nervous centers and to live a life of indirect forms of reaction.

The transformation within consciousness as well as in behavior which follows the substitution of tools for teeth and claws is of first importance in understanding human life. We do not know very much about the actual contents of animal thinking, but it is perfectly evident on the negative side that animals do not think in terms other than those of direct personal attack. The dog never thinks of setting a trap for his prey or of inventing a bow and arrow. The dog acts only when immediate action is demanded, and its inner world must be concerned only with immediate issues.

The content of human mental life is like human behavior—complex and largely indirect. The things which we have seen and heard in the world are of infinitely less importance to us than the estimates of value which we have learned to superimpose on that which we have seen. Ask a man what he thinks about the landscape which stretches before his eyes and you will be quite certain to get an answer filled with values and ideas which are entirely beyond animal consciousness.

Human behavior and thought have grown so complex that a new difficulty has resulted from the very complexity of the human nervous system. This difficulty is that there may be parallel and largely unrelated tracts through the higher nervous centers. The most conspicuous example of this is the one which was pointed out at the beginning of this article. The human nervous system is so complex that a sensory stimulation may travel two independent routes. A person may respond to the stimulation by uttering a word or he may reach for the object and do something with it.

Verbal reaction and hand reaction are thus seen to be two distinct and very often competing motor possibilities which are related to each sensory impression. The two modes of behavior would not be possible except in a complex nervous system. The more complex the nervous system becomes, the more possibilities there are of separate and competitive channels of discharge.

The school furnishes a very striking example of the way in which circumstances determine the selection in a given case of one reaction from among the many which are possible to human beings. The mode of behavior which has been evolved as the best means of setting up relations between human beings is speech. Teachers use speech, therefore, as their chief reaction to children and to the objects to which the school is to introduce children. Because of the usefulness of speech in establishing human relations, the school tends in ever increasing degree to demand of pupils that they become expert in speech responses to all of the factors of their environment. Pupils are asked to name this and that, to describe objects, to give the locations of places, to tell how they would go to these places and what they might expect to find. The speech reactions which the school demands are so complex and require so much skill on the part of the pupil that time has to be devoted to the cultivation of the refinements of these reactions. When one adds to the mere naming of objects and the mere describing of locations the demand that the speech reactions be elegantly as well as intelligently formulated, when there is a demand for complete well-ordered sentences and discrimination in the use of words, the school finds that its time is very fully occupied in bringing to maturity a single type of behavior. The school would admit at once that the type of behavior in which it specializes is only one of the possible types which might be cultivated in the pupil, but it is a difficult type and one of very great value. The school cannot accomplish everything in the time allotted to it, and, consequently, as many would doubtless contend if they had to defend the emphasis on words now very common, the school will have to forego some of the other possible lines of activity in order to cultivate fluency in speech.

An example borrowed from the workshop, where apprentices

are trained to do things in a practical way but are not taught how to tell about what they are doing, may serve to furnish the contrast necessary for a complete understanding of the school. The mechanic who responds by a skilful turn of the hand to the impression which comes to his eyes from the machine which he is making is using his central nervous structures to great advantage, but he is not using his speech centers. He is using the train of centers which lead from the eye to the hand. It is a familiar fact that the specialization of skill in manipulation may make the worker taciturn. He can no more control the niceties of rhetoric than can the fluent reciter control the instruments of the mechanic's trade.

Other examples can be drawn from the skilful habits of cooks and needleworkers. The cook tells through the sense of touch whether the right consistency has been reached in the compound which she is preparing. The needleworker makes the most expert adjustments with her fingers. Both frequently find it impossible to direct others to imitate their performances, because their impressions and reactions have all been specialized to issue in hand reactions; words and sentences have never been attempted in this particular field of experience.

It is not difficult to visualize what has been said about the possibility of specialization in a complex human organism and the absence of this possibility in the simple nervous system of an animal. We have only to think of a tract entering the central organs from a sense-organ and to recognize the fact that in the higher individual there are several tracts leading from this incoming path to the various motor centers. One will go to the vocal cords, another to the hand, a third to the legs, and a possible fourth to the thoracic and abdominal centers where the organic responses of respiration and digestion are located. It is not necessary to visualize these various tracts as absolutely mutually exclusive. In many instances a faint stimulation may travel down two or even three of the tracts, while the one which is most fully called into action is emphasized to such a degree that it is for practical purposes to be recognized as the true line of response.

It was pointed out that there is a tendency for the school to specialize in training speech reactions. Even if we are disposed

to be critical of the school for having thus emphasized one of the many possible lines of reaction, we cannot escape the conviction that the school would not have moved in the direction which it has taken if there had not been very powerful motives behind its specialization on speech. The powerful motives become apparent when we study the relative importance of racial and individual experience and skill. What could an individual do in the modern world if he did not have the co-operation and guidance of his fellow-beings? What would become of industry and of transportation if language should suddenly be forgotten? The biblical narrative of the Tower of Babel is but a faint expression of the dependence of human organization on common speech. The history of national feuds and amalgamations is a history of systems of communication.

The process of human education is essentially a process of inducting the individual into racial modes of thinking and reacting. If there should be a failure to accomplish the task of teaching the child to understand, in some measure, what the race has acquired, the whole structure of human society would fall apart.

The significance of social training has been so great that at times the school has lost sight of the complexity of individual life and has been content to train speech alone, leaving all of the other possible forms of reaction to such fate as mere chance or parental vigilance should dictate.

We are passing through a period of educational history in which there is a reaction against the specialization on language that is characteristic of the schools. In some quarters this reaction has been carried to extremes. It has been argued that the school should train skill of hand rather than cultivate ability in reading and listening. It has been said that pupils are being rendered inefficient by much perusal of books and little contact with industry. Movements to reform the school have been promoted by those who find that skilled workers are less easy to secure than formerly and that the discussion of political and social freedom has drawn not only pupils in the schools but men and women in the world at large away from habits of industry.

The educational world is thus confronted with the problem of reconciling a school which specializes in the training of pupils in

language with a widespread demand that practical skill be cultivated as a part of the training of pupils. It seems evident that the problem will not be solved by any one-sided decision for or against the various forms of human reaction. Language is one way of responding to the world, and skilful use of tools is another. Both are important and sure to survive. Complete education will have to find a way of dealing with all human possibilities.

The proposal that education be complete has sometimes been met by advocating classes in which the traditions of the ordinary school shall be retained and followed, and separate classes in which the various possible skills of hand shall be cultivated. The theory back of this program of dual education seems to be that human reactions are not only manifold but also distinct in nature and should continue to be distinct. Indeed, in some cases phrases have been coined which seem to imply that one type of reaction or the other is prescribed in the life of a given individual by inheritance. Thus, one hears a certain child spoken of as "hand-minded," whatever that means; another child is spoken of as "bookish" or "literary" in type. Such designations seem to be accepted in many quarters as justification for abandoning the effort to set up any type of response to the world which the individual does not seem to make quite readily. The hand-minded child is felt to be properly treated by the school if he is made more hand-minded; the literary child is kept out of the workshop, which is thought to be foreign to the tastes of such an individual.

Another argument which is offered for one-sided attention in the school to particular forms of reaction is that the school is only a part of life. The home, the church, etc., will give types of training that are omitted in the school and all will be well.

Any plan for dual education which does not frankly face the problem of uniting in a positive way the different forms of pupil reaction is an indefensible evasion. The very fact that human nature has become so complex that it is capable of parallel forms of reaction ought to make students of education aware of their duty to find some inclusive formula which will take into account all of the different possibilities and at the same time provide for proper interrelation and proper balance between these possibilities. Education is not merely the training of parallel lines of response; it is

the training of the whole individual so that he can on occasion utilize all of his abilities to the greatest advantage.

Let us consider a simple case. Here is a child who is to be helped by the accumulated experience of the race to make economically and rapidly something which will promote his welfare or his pleasure. Let us say that the child wants to build a playhouse. The very idea is obviously one which he borrowed from his civilized surroundings. Conceivably, he might go about the construction of the playhouse without seeking any help from others, but this is not likely. He is almost certain to seek the materials, the tools, and the plans by appealing to his elders. During the time that he is asking for materials and consulting about plans he is in need of a liberal command of language. Indeed, he is quite certain, as he tries to express his wants, to encounter numerous occasions when his language will have to be improved. He will learn the names of tools which he did not know. He will have ideas given to him about foundations which he probably never thought of before. Some of these ideas will remain in a purely verbal form in his experience because he has no sense impressions and no previous constructive efforts to use as means of interpretation.

After such preparation as he can make through words, our young builder commences work. A flood of new experiences come to him. Some of these are nameless, and some are discovered to be the experiences about which his elders informed him. There is here, to some extent, a cultivation of new and separate forms of reaction, different from the verbal reactions with which the child began. There is, in part, a cultivation of a combination of practical and theoretical experience. From the point of view of the child's future, can there be any doubt as to what is most advantageous? Is it desirable that he should learn to do certain acts of skill and be unable to translate his experience into words, or would it be more profitable at every turn for him to perform the act, connect it with its suitable descriptive reactions, and thus be prepared to utilize more fully the advice and directions of others?

It should be noted that, because of the complexity of human nature, there is a possibility of developing a hand reaction pure and simple. There is also a possibility in every human life of a verbal reaction which is utterly unrelated to any other form of experience.

The most productive form of experience is that which unites both of these possibilities in a higher form of training which enriches verbal reactions by coupling them with practical contacts and at the same time guides practical contacts with the racial experience that has been translated into words.

What is advocated here is a composite type of education. It is legitimate to contrast it with the specialized forms of education which are deficient because they are one-sided.

The writer was much impressed some years ago to find, in observing a group of boys who had failed in the upper years of the elementary school and had been brought together in what was called an industrial class, that the real reason for the school failure in most of the cases was not lack of general intelligence but lack of ability to read. These boys did not fit their upper-grade environment because the type of reaction demanded there was primarily a language type of reaction. Their failure was due to the complexity of their own natures and the specialized character of their social surroundings. Some of the boys did well in the industrial class and were interested in the shopwork offered them, but this was by no means universally true. The greatest headway made in interesting the group as a whole was made by a teacher who found that the boys could not read and devised ways of giving them a new start in reading. These boys were eager to get into contact with the human world, the world of ideas expressed in language, and they were barred from easy access to that world because of defects in their knowledge of language. They were no more hand-minded than the rest of us. They were no less in need of social training than other pupils.

If the argument presented in this article and the preceding articles of this series has been effective, it has made a case for a form of education which couples the abilities of the individual with the experience of the race. Language is important in human life because it is the individual type of action which links the pupil with the vast accumulations of knowledge of the ages. It is little wonder, in view of the limitations of individual powers, that words should become the overwhelmingly important items in school work. Words bring to the child, so far as he can grasp them, what he cannot bring to himself, namely, the contacts on which civilization depends

for its evolution and present form. Just in so far as words become mere sounds and fail to connect the pupil with the racial experience which is embodied in them, they are not educative. Just in so far as words guide experience and stimulate the individual to add to verbal reactions forms of response which will help him to realize what the words mean, there will be a coupling of individual mental life with the thinking of the whole human group.

Such a conception and definition of education leaves far behind the current doctrines which are concerned chiefly with instincts. An instinct is a primitive mode of behavior which the individual brings into the world at birth ready to function as one of the essential and necessary forms of activity for the preservation of life. Breathing is an instinct; restlessness when uncomfortable is the device which nature adopts in an effort to remove the cause of the restlessness; winking is a protective form of instinctive behavior. No one would minimize the importance of instincts in a pupil's life. On the other hand, it seems hardly possible that anyone can be satisfied with a psychology which thinks of these instincts as the chief concern of the educator. Far up in the human nervous system are certain higher centers. These centers are the newer centers produced in the course of animal evolution. They are so new that none of the animals share in their possession. They are so new that they develop not through inheritance but through the influences which surround the child. These are the higher centers which in China make it possible for the individual to react in the form of Chinese words and phrases. In the United States the higher centers mature in a wholly different way, giving the child contact with a civilization that expresses itself in the English language. It is through these higher centers that we acquire the habits of social intercourse peculiar to our country. It is through these centers that we are able to play musical instruments or exhibit the skill which results in works of art. To drag these higher forms of behavior back to the level of the instincts is to confuse the plant with the soil from which it sprang. To try to formulate the plans of the school on a psychology of the instincts is like trying to conduct a modern civilization on the basis of a simple system of primitive barter.

A SUMMARY OF SOME SIGNIFICANT CONCLUSIONS REACHED BY INVESTIGATORS RELATIVE TO ARITHMETIC

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Dogmatic opinions and unsupported statements greatly influenced educational thought for many generations. Progress was usually made by the laborious process of trial and error, and that which seemed to be successful experience was usually the standard by which practice was judged.

During recent years unsupported opinion has been relegated to a subordinate position in education, and the selection and organization of subject-matter as well as classroom technique are increasingly based on conclusions reached as a result of scientifically conducted experiments and investigations. As one writer expresses it, opinion is being taken down from its dusty throne and questioned, and unsupported statements relative to educational procedure no longer go unchallenged.

Since 1902, when Rice, an educational pioneer, gave tests to some six thousand pupils, great progress has been made in scientific research in arithmetic. Although his investigations lacked the refined technique that has since been developed in this field, Rice deserves a great deal of credit because he blazed the trail, and several of his conclusions have been corroborated by more recent investigators.

Rice was the first investigator to demonstrate the wide range of ability in each grade and to show the extent of the range. He called attention, also, to the great overlapping of ability in each of the grades.

The later investigations made by both Stone and Woody corroborated the conclusions reached by Rice with regard to the wide range of ability in the fundamental operations, and Bonser's investigation supported Rice's conclusions with regard to reasoning

ability in arithmetic. Three investigators—Bonser, Woody, and Kruse—confirmed Rice's conclusions with regard to the overlapping of ability from grade to grade.

A careful study of all available data led Rice to conclude that the two factors which contribute most to the improvement of the work in arithmetic in the grades are the setting up of reasonable standards of achievement based on the mental capacity of the average pupil and the use of scientifically prepared tests in measuring the progress of the pupils. Stone's investigation also revealed great need for the establishment of standards of achievement.

Stone sought answers to the following questions: "What is the nature of the product of the first six years of arithmetic work?" "What is the relation between the distinctive procedures in arithmetic work and the resulting abilities?"

Stone introduced some new features which have since been somewhat modified and incorporated into the measurement movement. He made the time limits for each of his tests so brief that no pupil in the grade could complete the test in the allotted time. The tests were measures, therefore, of the rate of work rather than of the difficulty of the tasks that could be accomplished. Stone also prepared a key showing exactly what answers were to be accepted. This key gave a certain uniformity to the results and made possible the comparison of one group of pupils with another.

The utter lack of uniformity in marking test papers in arithmetic was demonstrated by both Kelly and others. It is now generally recognized that even experienced teachers differ widely in their estimates as to the proper mark to be assigned to a given test paper in arithmetic. Some teachers mark entirely on the basis of the correctness of the results; others give credit for correct procedure even though the result is incorrect; some give credit for neatness; and some give credit for punctuation. Since many factors operate to influence the judgment of the teacher in the marking of papers, it is evident that the marks received by the pupils of various classes on a given test cannot be compared unless a uniform method has been followed in the scoring of the papers.

Stone determined the difficulty of the various tests which he used by first submitting them to groups of pupils. The tests were

then arranged in the order of their difficulty on the basis of the proportion of children who did each task correctly when sufficient time was allowed for each pupil to accomplish as much as he could. Some teachers still assume that they can arrange a series of tasks in the order of their difficulty for pupils, but investigation has shown that, unless there is a wide range of difficulty, such an arrangement is not possible without actually testing the relative difficulty with groups of pupils.

Using the data from the twenty-six school systems which he investigated, Stone established certain standards of achievement in his tests for pupils in Grade VI A. He and all other investigators found that there were wide variations from these standards. In the Cleveland survey report attention is repeatedly directed to the wide variation in achievement and to the need for the establishment and use of reasonable standards of achievement and for adequate supervision.

Stone was a pioneer in the establishment of standards in arithmetic, but he established standards for only one grade, and the standards applied to only one test in each phase of arithmetic. His conclusion that there is greater uniformity of results among the various school systems in ability in the fundamental operations than between ability in any of these operations and the ability to solve arithmetic problems has been corroborated by a number of more recent investigations.

The technique which Stone used has been improved and has been more or less closely followed by others who have sought to establish standards of achievement for the various grades.

Kirby, one of the best-known investigators who has studied the relative effect of short and long drill periods, found that when a given amount of time is to be used for drill greater gains in speed in both addition and short division result from many short practice periods than from a few long practice periods. Kirby's investigation seems to indicate that two- or three-minute drill periods for the fundamentals are the most effective. Extensive investigations by J. C. Brown and others corroborate Kirby's conclusions.

Kirby also found that, although there was a certain loss in efficiency as a result of the summer vacation, the pupils were still far ahead of the speed and accuracy records which they established

before the drill periods were started. Moreover, it was found that only about thirty minutes of distributed practice were necessary to bring the pupils back to the degree of efficiency which they had attained at the close of the drill periods.

Bonser's study of the reasoning ability of school children revealed some striking sex differences in the ability to solve arithmetic problems. It was found that boys are considerably superior to girls in this respect. This conclusion has been corroborated by the scores made on that part of the Army Alpha Test which deals with arithmetic problems. Investigation has also shown that even in the classes in which the girls surpass the boys in the fundamental operations in arithmetic, the boys make higher scores than the girls on the Buckingham problem test.

The exhaustive and careful studies made by Courtis resulted in the development of tests in which the tasks set for the pupils are of approximately equal difficulty. The Courtis tests were prepared to measure speed and accuracy rather than the difficulty of the arithmetical operations that a pupil can perform successfully.

The Courtis tests have had a great influence in thousands of classes in the development of reasonable rates of speed and accuracy, and too much credit cannot be given to Courtis for the years of patient labor which he devoted to his investigations. Almost all progressive teachers are so familiar with the Courtis tests that it seems unnecessary to comment further on them.

Woody constructed a series of tests for measuring achievement in arithmetic. In the development of these tests Woody found that it is in the difficult tasks that marked differences in achievement are apparent from grade to grade. When only the easier tasks are given, less difference is found between consecutive grades.

The original Woody scales have been revised and improved, and they form an important contribution to the field of educational measurements. Buckingham and Monroe have also prepared somewhat similar scales and tests for measuring ability to solve arithmetic problems, and Otis has developed an arithmetic reasoning test. These scales and tests are being widely used, and they will have a marked influence on practice.

Counts, using the Cleveland survey tests in arithmetic, made

an investigation of the number of correct results as compared with the number of examples attempted by children in Grades III to VIII. He also investigated the percentage of accuracy. Counts found that, while pupils of all degrees of ability make progress in the acquisition of arithmetical skills, the bright pupils make more absolute progress. He concluded that one of the results of school training in arithmetic is an increase in individual differences. Counts also found that the greatest amount of inaccuracy in arithmetic usually occurs in the processes which involve great mental strain without frequent change to other types of mental operations. Counts's investigations seem to justify the conclusion that, while accuracy is more the result of proper practice, speed probably depends more on the maturity of the pupil.

Counts has called attention to the tendency of strong associations, such as $4+4=8$ and $6+6=12$, to assert themselves in the midst of another operation. For example, the pupil is expected to multiply 4 by 4, but the strong association of 4 and 4 in addition asserts itself and the pupil gives the result as 8.

Myers has recently called attention to the persistency of the same errors unless they are eliminated by definite and systematic procedures. Myers' study is a very interesting one, and it will be pursued farther by a number of investigators.

As a result of extensive studies, Osburn found that 25 per cent of the errors made by pupils in addition are errors involving knowledge of the combinations themselves, while 8 per cent of the errors are due to mistakes in "carrying." In subtraction, 40 per cent of the errors are due to "bridging," and 20 per cent of the errors involve zero difficulties. In multiplication, 50 per cent of the errors are due to inaccuracies in the fundamental operations, and 5 per cent of the errors involve the zero combinations. In division, 43 per cent of the errors are due to inaccuracies in the fundamental combinations, and 13 per cent are due to zero difficulties. Osburn found that a given process, such as "bridging the tens," is more difficult in subtraction than in addition. The zero difficulty, while very apparent in both subtraction and multiplication, is still more evident in division.

Knight recently demonstrated the fact that if all of the elements

involved in an arithmetic process are familiar and if the process is thoroughly learned with one kind of material, as in the addition of fractions having even numbers for denominators, there is a large amount of transfer of ability when the same process is employed with similar material, as in the addition of fractions having odd numbers for denominators.

There is some evidence to warrant the conclusion that pupils are sometimes not promoted in arithmetic because they are considered too young rather than because they are thought to lack the ability to do the work of the higher grade. There is also evidence which raises a question as to the desirability of requiring many pupils to repeat the work of a given grade in arithmetic.

Holloway attempted to determine the relative difficulty of the elementary number combinations in addition and multiplication. His study resulted in a listing of the combinations in the order of difficulty from four points of view: (1) the difficulty as shown by learning the combinations, (2) the difficulty as shown by the errors made in the combinations, (3) the difficulty as shown by the combinations which are forgotten, and (4) the difficulty as shown by the time required to write the combinations.

An investigation of three of the best books in the field of elementary number led Holloway to the conclusion that there is no relation whatever between the number of times a combination is presented and the difficulty of the combination. Some of the easiest combinations received many times the attention that was given to the more difficult combinations. Holloway concluded that both direct and reverse forms, such as $7+8$ and $8+7$, should be taught. Other investigators have corroborated this conclusion.

Osburn, after a careful examination of some widely used textbooks in arithmetic, found that the greater amount of practice is actually given to the combinations which are easy and the smaller amount to the more difficult combinations. The authors of the textbooks examined had very seriously neglected the combinations involving zero. Osburn also found that approximately five hundred of the 1,470 combinations which he listed were not included in the exercises examined, while others of the combinations occurred as often as ninety-two times. Osburn states that the range of repeti-

tion varies from zero for about 180 of the combinations to 335 for others.

Thorndike showed that the amount of practice furnished by certain reputable textbooks in arithmetic for the more difficult combinations, such as $8+7$, $9-7$, 8×9, and $72\div9$, is much less than that furnished for easy combinations, such as $1+2$, $2-1$, 2×2, and $4\div2$. Thorndike says, "Even gifted authors make instruments for instruction in arithmetic which contain much less practice on certain elementary facts than teachers suppose and which contain relatively much more practice on the more easily learned facts than on those which are harder to learn."

Clapp tested for the automatic mastery of combinations when presented singly and for ability in the combinations when presented in problems with no time limits. He found that combinations hold about the same positions of relative difficulty throughout the grades and that the larger the members of a combination the greater is its difficulty. The zero combinations prove more difficult when they are presented singly than when they appear in problems. In problems pupils make the smallest percentage of errors on combinations in multiplication; then come, in order, subtraction, addition, and division.

Clapp found that combination-reverses are not more nearly equal in difficulty than other combinations; a negative correlation exists between the difficulty of combinations and their frequency in two popular textbooks examined.

A number of investigations have been made dealing with the content of the curriculum in arithmetic. Monroe found that of the 1,023 different types of problems which occur in four arithmetic texts examined, one-half are found in only one of the texts. It is evident that some types are relatively useless and hence have no place in the texts or that many types of problems are omitted which should find place in the texts. Monroe also found that the number of repetitions for the various types of problems included varied from one to 108. It is probable that one repetition is almost as worthless as 108 are needless.

The investigation made by Wilson to determine the kinds of arithmetic problems which are actually used in social and business activities is illuminating. From a list of problems carefully col-

lected from more than four thousand persons through tabulations made by their children of all of the arithmetic problems which they had to solve for a period of two weeks, it became evident that the majority of adults ordinarily use arithmetic only when something is bought or sold or when some measurement is necessary.

Wilson found that, when the problems were analyzed with respect to the arithmetic processes involved, addition with 20.1 per cent, subtraction with 12.9 per cent, multiplication with 31.8 per cent, division with 11.1 per cent, fractions with 9.0 per cent, and simple accounts with 5.5 per cent constituted more than 90 per cent of all of the processes used. Most of the remaining processes in the four occupations which were studied intensively closely follow the relative frequency of their use in all occupations. The problems which occurred in actual situations were characterized by their simplicity. Only 72 of the 4,416 addition problems involved more than four-place numbers; very few problems in subtraction involved more than four places; of the 6,974 multiplication problems, only 53 had four-place multiplicands, and none had five-place multiplicands; the 2,437 problems in division included only 102 problems with four-place divisors and only one with a five-place divisor. About one-eighth of the problems involved fractions, and the fraction "$\frac{1}{2}$" made up nearly two-thirds of the total number of fractions used.

It is evident from Wilson's study that several of the traditional processes might properly receive less emphasis or be entirely omitted and the time thus saved devoted to the better mastery of the simpler processes and to the study of the applications of arithmetic to modern social and economic situations.

Mitchell analyzed the arithmetic abilities required to use standard cookbooks, to handle factory pay-rolls, and to understand advertisements of sales and general merchandise catalogues. He found that there is great frequency of small numbers, especially in fractions and mixed numbers. He found that discounts, with the exception of "$\frac{1}{3}$ off" and "$\frac{1}{2}$ off," are almost always expressed as percentages and never as so many "cents on the dollar."

Wise reported a study of approximately eight thousand problems which parents in fourteen cities in widely separated states were called upon to solve. He found that in 85 per cent of the problems

knowledge of the four fundamental operations and their combinations was necessary. He found, also, that differences in classification of problems from urban and rural districts were negligible. He also discovered that 93.9 per cent of all of the fractions used in the problems were the fractions "$\frac{1}{2}$," "$\frac{1}{3}$," "$\frac{2}{3}$," "$\frac{1}{4}$," "$\frac{3}{4}$," "$\frac{1}{5}$," and "$\frac{1}{8}$."

Woody's study of 4,661 bills of sale revealed a condition similar to that found by Wilson. Of 985 addition processes, only 26 involved five-place numbers; of 3,314 subtraction processes, only 15 involved five-place numbers; of 4,208 multiplication processes, only 8 involved a four-place multiplicand or multiplier; in only 52 out of 656 division processes did either the dividend or the divisor have as many as four digits. Woody found, also, that decimals and percentage are used largely in problems involving United States money.

Woody found that the fractions most frequently used in bills of sale are halves, fourths, sixths, and twelfths. He advocates more emphasis on "mental" arithmetic since it is used almost exclusively in many situations.

A great deal of credit is due to Thorndike for his careful analysis of the various arithmetic processes into their simpler elements. Thorndike has shown, for example, that in simple column addition a number of abilities are involved and that each of these abilities is psychologically distinct and requires distinct educational treatment. Thorndike has shown that in order to master column addition the pupil must learn each of the following: (1) to keep his place in the column as he adds, (2) to keep in mind the result of each addition until the next number is added, (3) to add a sum to a thought-of number, (4) to learn to neglect an empty place in the column, (5) to learn to neglect zeros in the column, (6) to learn how to add when the addition involves the higher decades, (7) to learn to write the figure signifying units rather than the total sum of a column and, in particular, to learn to write "0" in the proper place when the sum of the numbers in the column is 10, 20, 30, etc.

Thorndike has shown that learning to "carry" involves in itself two distinct processes by whatever method it is taught. He

has made a valuable analysis of the kinds of number habits that should be formed, of how well these habits should be formed, of how these habits should be combined into more complex abilities to enable one to deal intelligently with complicated arithmetical situations, and of the conditions under which number habits should be formed.

Thorndike's researches in the field of arithmetic furnish a striking illustration of the significance of the application of well-known psychological principles to definite learning and teaching situations in an elementary-school subject.

Within recent years great progress has been made in the diagnosis of pupil difficulties in arithmetic. The limits of this article will not permit a discussion of this interesting field, but teachers and supervisors should familiarize themselves with the valuable literature now available.

The first bibliography which follows is given as an aid to those who wish specific references in the field covered by this article. Teachers who wish special references in the field of arithmetical diagnosis should consult the second bibliography.

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DIRECT AND INDIRECT METHODS OF TEACHING IDEALS[1]

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There are two methods of attacking the problem of developing ideals—the direct and the indirect. When the direct method of attack is used, the development of the ideal is set up as the objective and is made the center of discussion and the object of thought. We say, "Let us develop the trait of neatness," and we discuss ways and means by which this can be done. Resulting from this is a natural transition from the ideal to the field of trait actions; that is, in order to develop the trait we need to perform certain actions, and these actions become the means toward an end. Thus the development of the trait becomes the major problem, and the selection of the media through which the trait is developed is subordinated.

When we use the indirect method of attack, the procedure is reversed. The ideal is subordinated to the activity. For instance, in working problems in arithmetic, the objective is to reach a solution, but in doing this we make a decision with regard to the ideals which shall control the situation. We may select accuracy and rapidity as two important ideals. Consequently we develop a plan which will solve the problems accurately and rapidly. Thus we see that the activity—the solution of the problems—is of major importance, and the ideals are incidental. In fact, the indirect method is commonly known as the incidental method. We solve the problems and perform the activities which the situation calls for, and in connection with them we use whatever ideals are most likely to produce satisfactory results.

We shall now proceed to an elaboration of these methods. We shall first give an illustration of the direct method of attack. This

[1] This is the second of a series of articles dealing with the content of the curriculum. The articles are excerpts from a book which is to be published on "The Teaching of Ideals."

illustration is drawn from work with adults where the problem is much easier to solve than it would be if children were being taught. The simplicity of the problem, however, will set the method into relief. Then we shall describe the indirect method of attack.

The direct approach.—It has been the custom for a number of years in the Research Bureau for Retail Training of the University of Pittsburgh, where a small number of people are trained for department stores, to pay some attention to the development of personality. The importance of developing personality was revealed by the fact that when our graduates failed to succeed in their occupations, their failure was never due to lack of information. They knew enough. The difficulty lay rather in the fact that they were weak in certain traits of personality. Moreover, when they succeeded to a marked degree, it was found that their success was due, to a conspicuous extent, to certain strong traits of personality.

When these facts became evident, it was decided that something needed to be done. The first step taken was to make a list of the traits which explained the success or failure of educational directors in department store work. This list was compiled with considerable care and was mimeographed. At the beginning of each year the importance of personality was impressed upon the students, and they were told that if they wished assistance it would be willingly given to them. The assignment of work was not made compulsory because it was too important. It was put upon a voluntary basis in order to make certain that the desire for developing traits was present. This, of course, simplified the problem, because we did not have to create the desire. It was interesting to note that in each class every student availed himself of the opportunity. The students were young and ambitious and had the vocational urge to succeed.

When the student came for the preliminary conference, he was given a list of traits and was asked to rate himself upon them. If he felt that he was average, he was to mark himself C; above average, A or B; below average, D or E. He was allowed to ask his friends to join with him in rating himself if he cared to, but it was definitely understood that all conferences held were to be confidential. This condition seemed wise for two reasons: If the student knew that

what he discussed would not be repeated, he was likely to be frank about his difficulties. The adviser felt that the effort would be more serious in confidential conferences than in group discussions.

After the student had rated himself, he had a conference with the adviser, which usually lasted for an hour. At this conference the student gave his own rating and the reasons for this rating. The adviser was thus able to get a detailed picture of the personality of the student. Sometimes the rating given by the student was agreed to; sometimes it was changed after the adviser had expressed his opinion and made his contribution. In general, it may be said that this particular group of students was inclined to underrate rather than overrate themselves, although, in the opinion of the adviser, there were striking cases of overrating.

When the list had been discussed completely, results such as the following appeared on the diagnostic form:

QUALITIES OF EDUCATIONAL DIRECTORS

C 1. Industriousness
B 2. Desire to serve
D 3. Forcefulness
C 4. Enthusiasm
D 5. Ability to get other people to work hard
B 6. Good personal appearance
B 7. Ability to get other people's point of view
D 8. Memory for names, faces, personal incidents
D 9. Initiative
B 10. Dependability
C 11. Persistence
D 12. Self-confidence
C 13. Good health habits
B 14. Reticence about confidential and semi-confidential matters
C 15. Tact
B 16. Sincerity
? 17. Discrimination
B 18. Ability to relax
C 19. Ability to plan
D 20. Ability to train
D 21. Ability to delegate work
C 22. Friendliness
B 23. Efficiency in economy of time and effort
B 24. Sensitiveness to criticism

D 25. Ability to size up people
? 26. Resourcefulness
B 27. Cheerfulness
C 28. Resilience

With this list of qualities before the adviser, the plan of campaign was marked out. The ratings were divided into three groups: the A's and B's, the C's, and the D's and E's. Obviously, this particular student had a number of strong points. He was anxious to help people and had a good personal appearance. He was able to get other people's point of view; he was very dependable and was reticent about confidential and semi-confidential matters. In addition, he was sincere; he was able to relax; he was economical of time and effort. He was more than ordinarily sensitive to criticism, and he had a cheerful disposition. This, it will be observed, is a rather good list of traits. On the other hand, he was weak in a number of traits. He was not as forceful as he should have been; he was not able to make other people work hard; he had a poor memory for names and faces; he was lacking in initiative. He was also lacking in self-confidence, in the ability to train people, and in the ability to delegate work. Finally, he did not feel that he could size up people with accuracy. Parenthetically, it will be noted that no decision was reached on one or two points. He did not know whether he was able to discriminate between more or less important matters, and he had no data on which to decide whether or not he was resourceful in meeting situations. The adviser likewise had no knowledge of his ability in these traits, and so they were questioned.

Obviously, it was unnecessary to devote any time to the strong traits because they would take care of themselves. The weak traits were the ones that required attention; but occasionally the student wanted to work on some of the average traits. Finally, a list was selected, made up of Items 3, 5, 8, 9, 12, 13, 20, 21, 22, and 25. These were the traits on which the student worked during the year.

It is interesting to note that a number of these traits belong to one group. For instance, the student's lack of self-confidence was undoubtedly a factor in his lack of forcefulness, in his lack of ability

to get other people to work hard, in his lack of ability to delegate work, and in his lack of friendliness. If self-confidence could be developed, his forcefulness would be increased. The student would not be afraid to make other people work harder; his initiative would be greater; he would be more willing to delegate work; and he would be more positive in his friendliness. There might be other causes for weakness in these traits, but undoubtedly self-confidence was a central point of attack. In addition to this group, other traits could be made centers of attack. Specifically, these were memory for names and faces, good health habits, ability to train people, and ability to size up people. The last three traits mentioned were rather distinct from one another and from self-confidence.

At the end of the interview, two of these traits were selected for attention—memory for names and faces and self-confidence. The student was given an assignment for each of these. The assignment for developing the ability to remember names and faces was such as the following: First, concentrate on the name of a person when you meet him so that you will have it clearly in mind. Second, use the name in acknowledging the introduction—for example, "How do you do, Mr. Smith." Third, use the name in the ensuing conversation as often as possible without attracting attention. Fourth, each night before retiring make a list of all of the people whom you met during the day; recall the appearance of each person and the gist of what was said. When you cannot remember a name, draw a straight line. Fifth, the next time you meet the person, call him by name. Sixth, when you meet a small group of people, see if you can recall the names of all of them after you have been introduced. If you cannot, get the names from someone who knows. Seventh, become familiar with the names of the janitors and stenographers and other people with whom you come in casual contact around the building.

Before an assignment could be made in an effort to develop self-confidence it was necessary to diagnose the cause of the lack of confidence; consequently the assignments varied. In cases where the lack of confidence was due to a feeling that the individual had never done anything worth while, the student was asked to make a list of all of the things of which he had a right to be reason-

ably proud. Sometimes the student was surprised to find that this list was made up of fifteen or twenty comparatively important items. He was told to read this list frequently and to teach himself to believe that since he could do all of these things satisfactorily, the possibility of his doing other things is great. Sometimes the difficulty was due to the fact that the student thought that everyone was better than he was. In such cases it sometimes proved helpful to have the student study each member of the class in order to discover some respect in which he was superior. This procedure produced rather surprising results in some cases.

At the end of the conference the student was told to report in two weeks for a twenty-minute conference. He was to make a written report, stating what he had done, the points at which he had been successful, and the problems that caused difficulty. It was explained that the assignment was just as definite as assignments in history or mathematics, that it should be long rather than short, and that it should be entirely frank.

At the second conference the report was discussed; praise was given where it was merited; and the difficulties were explored. At the end of this conference the same assignment was probably continued, and perhaps new methods of handling it were suggested. In some cases another trait was added to the list. This procedure was followed in the succeeding conferences. As soon as the student felt that he had a good hold on the technique of developing a particular trait, work on this trait was dropped from the conference.

It has been our experience that a semester spent with a student in this way has been sufficient in most cases to establish the habit of giving attention to the development of personality. The student discovers in this period what his weaknesses are, and he knows in general how to attack them. In a few cases it seemed to be necessary to continue the training for a year. This does not mean that in each case the traits had become perfect. It means merely that the student had a clear idea of what to do.

Evaluation and analysis.—It is clear that in several respects the situation described is a simple one. In the first place, the students wanted to develop their weak traits. The desire had already been created. Quite different is the situation of the teacher of young

children, where the chief problem is to create the desire. In the second place, they were picked students, most of them college graduates, who could apply intelligence and sustained effort to the development of a trait.

The illustration, however, contains a number of points of interest. In the first place, work upon traits is most efficiently accomplished when it is put on a voluntary basis. When a student comes to the instructor for assistance, he is ready for it, and he will work harder than he will when an assignment is forced upon him. It would be entirely futile for a teacher to say, "I am going to make an assignment in courtesy. Everyone must be courteous, and you must do the following things." In the second place, the analysis of the student's personality is helpful. Many students never have the opportunity to talk over with someone this all-absorbing topic, and the mere analysis in any corrective work is extremely useful. In the third place, diagnosis of the causes of weakness is essential. When the cause has been discovered, the correctives can be intelligently selected. This is true of both the diagnosis of difficulties and the diagnosis of incentives. In the case of the students, the incentive was easily determined; they wanted to make a success of the vocation which they were entering, and they knew that the traits listed are important. In the fourth place, the corrective exercises have to be chosen from the ordinary everyday life of the student. There is no formula which will in some mysterious manner develop traits by its mere application. If the student wishes to remember names and faces and personal incidents, he must meet people and practice upon them as he meets them every day. If he meets no one, he obviously cannot develop the trait. If he wishes to develop discrimination between more and less important matters, he has to do this every day in connection with the situations that arise in his normal life. Indeed, there were some traits which could not be developed in school. For instance, in the list given, the student could not develop in school the ability to get other people to work hard or to delegate work because he had no one to make work hard and no one to whom to delegate work. Consequently, these traits had to be left until the students entered the stores as executives.

In the fifth place, the corrective exercises—the trait actions—have to be worked out in great detail. Finally, the individual fortnightly conference was extremely useful as a matter of discipline. The students ordinarily would have become careless and would have neglected the assignments, but they were held to them because they had to make a frank report every two weeks. Sometimes when they grew discouraged, the friendly atmosphere of the conference stimulated their enthusiasm to continue.

Gradation.—Just how old a student must be before a systematic direct attack such as this can be undertaken successfully is a serious question. Undoubtedly, graduate students who are about to enter upon a vocation appreciate the opportunity of doing this kind of work. Students in college who have chosen a profession and even those who have not are, in general, interested in this sort of study of their personality. The case is less clear for the high-school student. There is a larger number of students at the secondary-school level who would not be interested, but there is a very considerable number who would voluntarily and gladly seize an opportunity for doing this kind of work in a systematic way. In the elementary schools and the junior high schools still fewer children have the maturity necessary to attack the problem of personality training systematically, but there are countless cases in which specific traits can be directly attacked and, as a matter of fact, are directly attacked. Numerous illustrations of discussions of courtesy in the classroom, at home, and in theaters are provided by teachers. The children of the first grade are not able to analyze their personalities in the comprehensive fashion that graduate students are, but they are interested in direct attacks on individual traits in individual situations. The problem of gradation—that is, of the grades in which the direct attack can be made—has not been attacked by anyone in a systematic fashion; but the task is not a difficult one, provided the course of study is laid out after we have determined the traits which shall be developed and the situations to which they apply. The experience of the teacher who experiments with instruction in the different grades will determine when training in the various traits should begin and how it should be developed from grade to grade. Of course, it is hardly necessary

to say that one attack on a trait is not sufficient; it has to be consistently continued. If a course of study in trait development is to be covered, the major responsibility for each trait must be placed with the understanding that this may be referred to again and again both before and after it has been taught in the grade to which it has been assigned.

The indirect approach.—When the indirect approach is used, the instructor teaches ideals in connection with the subjects of the course of study, such as geography, arithmetic, spelling, and penmanship. He also seizes opportunities in connection with the management of the school to make matters of discipline the basis for instruction in the proper ideals. The advantages of this method of attack are important. Particularly, the pupil gets a great deal of practice in that combination of the ideal with the activity which is absolutely essential. We have seen that if the ideals are to be adopted, the pupil must have more than a knowledge of the ideals as abstract nouns. He must use them to modify his actions. A good way to develop the ideal of accuracy is to require accuracy in each of the school subjects, and an excellent method of developing neatness is to require the pupil to be neat in all of those specific situations in the schoolroom where neatness is desirable.

All of these habits the teacher can develop by the indirect method, provided certain safeguards are set up. In the first place, the pupil must recognize the fact that he is working upon an ideal in connection with the assignments that are made. Care must be taken to see that the desire for the ideal is created. Specifically, it is not sufficient to require neatness in written work and in the care of desks and supplies; the child must get satisfaction out of his efforts to be neat, for it is possible that rigid and unintelligent requirements for neatness, where the value of neatness is not recognized by the pupil, may actually cause the child to dislike neatness; as a result, the ideal may be weakened rather than strengthened. In the second place, the teacher must insist on the operation of the ideal. She may, however, not require accuracy, and there may be two or three reasons for this. She herself may not be accurate, or she may not be greatly interested in accuracy, or she may be indifferent to school work, looking upon it as a mere job for which

she draws a salary. If the standards are not insisted upon by the teacher, they are not likely to be developed except by those few pupils who possess the trait as a native endowment. In the third place, the procedure must be intelligent. In some cases the teacher merely scolds about inaccuracy, and the child reaches the point where he looks upon accuracy as "fussiness" on the part of the teacher, "who makes him do the thing over and over again." In such cases the pupil has not been made aware of the value of the ideal. In the fourth place, the teacher must not only insist upon standards and make the pupil accept them so far as she is concerned but also help him to apply the standards in other situations. A boy may be industrious in the arithmetic class in a platoon school but lazy in the history class. It may be argued that the history teacher should take care of industry in her own classes. It is true, nevertheless, that the arithmetic teacher can help the boy by generalizing his ideal for him and talking about the importance of being industrious in all situations. Finally, the teacher must have a definite idea of the traits that are to be developed. This cannot be left to chance attention, for the teacher may not herself have the ideals which are desirable, and she may not have thought of them in connection with the subjects which she is teaching. A list of traits should be made, and it should be definitely decided that the school will endeavor to develop a definite number of specific traits. Regardless of the methods used in compiling the list, it is absolutely essential that a great deal of attention be paid to this question.

Once the list of traits has been determined, it becomes the duty of the teacher, with proper assistance, to decide which of the traits shall be developed in connection with each subject. For instance, it may be agreed that in the case of handwriting neatness, rapidity, unselfishness—exemplified in legibility—and accuracy in the formation of letters are the traits to be particularly developed. The degree of each of these traits should be determined for each grade. In some cases this can be worked out in great detail. We cannot expect perfection in rapidity in each grade, but we do find the following standards in the Ayres scale: The child should have a speed of 44 letters a minute in the third grade, 55 letters a minute in the fourth grade, 64 in the fifth grade, 71 in the sixth grade, 76 in the

seventh grade, and 79 in the eighth grade. The standards for neatness are less definite. The standards for quality and forms of letters are worked out in the Freeman scale.

With the standards worked out in detail wherever possible and applied approximately where they cannot be worked out definitely, the teacher knows, to a fairly definite degree, how much of the development of the trait she is to accomplish in her grade. The same amount of definiteness is not possible in such a subject as history, and yet the lack of definiteness need not seriously handicap the history teacher, because it is possible to teach ideals without definitely measuring them. In history it is sufficient to know that certain ideals, such as open-mindedness, patriotism, accuracy of memory, speed in reading, and intelligence in study, can be developed even though they cannot be accurately measured.

Theoretically, all traits may be developed in connection with each subject; but, practically, an individual subject lends itself best to the development of certain traits and less well to the development of other traits. Obviously, loyalty to country and patriotism are not traits conspicuously apparent in handwriting; nor is servicefulness a trait that one associates with arithmetic. Only by far-fetched reasoning can we make handwriting exercises an attribute to patriotism, as, for instance, in the use of patriotic sentiments as exercises in penmanship. In the case of each subject there are a number of traits which this subject is best fitted to develop, and these should be assigned to it.

Another basis for indirect attack is found in the social life of the school. If sportsmanship is accepted as one of the ideals to be developed, the situations that arise where good sportsmanship can be taught should be used as a medium of instruction; and if courtesy is a trait to be developed, situations involving this ideal should be seized upon.

By such means a large number of traits can be developed from year to year, and it is possible that all of the selected traits may be covered in this way. We cannot, however, depend on this merely incidental method of procedure, because it is possible that some of the important traits may not be adequately treated. For example, open-mindedness, which is a difficult trait to develop, may receive

far less attention than it needs in order that it may be achieved to a sufficient degree by the student.

We need, therefore, a double check in using the indirect method. We first check the subjects and the social situations of the school to see which traits can be normally developed in the ordinary school procedure. Then we need to check our list of traits to see whether or not the amount of instruction given covers all of the cases which normally arise and provides sufficient repetition to develop the necessary habits. When it is found that there are gaps in the instruction, methods must be devised to see that training sufficient in extent of situations and intensity of repetition is provided before the child leaves the school. Only by this double check can we be sure that we have given adequate attention to the development of the fundamental principles.

Summary.—In using the indirect method of approach to ideals, the following factors must be taken into consideration: In the first place, the members of the faculty must, by the use of adequate methods, determine those ideals which they are convinced should receive special emphasis. Second, the ideals which can be most efficiently emphasized in each subject should be determined. Third, the typical school situations outside of the learning of subject-matter should be listed and certain ideals in the list assigned to each. Fourth, the ideals selected by the school should be checked against these to see that attention sufficient to generalize and habituate them is given to the ideals. Where this has not been done and when gaps are found, appropriate methods should be adopted to insure the development of the habits. Fifth, when subject-matter and school situations are used for the development of ideals, care must be taken that the children recognize the fact that the ideals apply to the subject-matter and the chosen situations and that satisfaction arises from the application of the ideals. Sixth, the teacher should make the ideals so attractive that the pupils will prefer them to negative and lower ideals. Conversely, the negative ideals should be made so unattractive that the pupils will be willing to give them up. Seventh, the application of the ideals must be sustained by persistent attention to them. Impulsive and uneven use of standards makes habituation impossible.

THE CONTENT OF ORDINARY READING

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What do adults read? What are the characteristics of the materials they are most interested in reading? A study of the number of newspapers, great and small, in America and the extent of their circulation, is sufficient evidence that newspaper reading exceeds in volume all other types of reading. The proof is so evident that the case does not need to be argued. The reading of current magazines and periodicals claims second place in importance. Several of the magazines have a circulation of more than a million copies, weekly or monthly. It is estimated that from two to five persons read each copy. Some of the magazines, therefore, are read by from two to six million people. The Americans are the greatest readers of newspapers and magazines of any people in the world; they are reading more today than at any time in the history of mankind. This means that newspapers and magazines are exercising a dominant influence over public opinion. Possibly the best estimate of what people read and enjoy may be obtained from an analysis of what they read most. Therefore, a study of the character of the content of newspapers and magazines, of the circulation of a great public library, and of the sale of books at prominent bookstores will probably best answer the questions asked.

In answering the question, "What do adults read?" we may assume that they read all of the material they purchase or at least part of it. An analysis, therefore, of one of the most representative newspapers in this country, the *Chicago Daily Tribune*, with a circulation of 689,282 copies, and of one of the widely read weekly magazines, the *Literary Digest*, with a subscription list of more than a million, will serve to indicate the type of current material adults read. This sampling is not conclusive; it is not a comprehensive sampling, since that would require a study of many issues of the

paper; but it is indicative. This is certainly one of the methods that would be used in finding out what people read. The analysis of current issues of this newspaper and this periodical will show, in some measure, where the emphasis is placed.

What do the readers of the *Chicago Daily Tribune* read as revealed by an analysis of an issue of the paper dated July 21, 1924? The emphasis which a newspaper places on "news" may be determined by two criteria, the amount of space devoted to the subject and its location. A study of Table I shows the topics which were given the most space, but it does not reveal the nature of the material printed on the front page, which, as a rule, is considered the "best news" and is accordingly read by the largest number of people. The topics which received by far the greatest amount of space, as shown by the number of lines devoted to them, were, in the order of emphasis, athletics, markets, crime, and government and politics. Of those topics which occupied the front page, crime led all of the rest. Reports of accidents also received prominent placement. Government and politics came third. The *Tribune*, probably less sensational than most newspapers, does not report the disasters of mankind as fully as many other papers. However, sensitive to the demands of the public from which it derives its support, it publishes articles which people are most interested in reading. We may assume that the public, or at least that part of the public which reads the *Tribune*, is interested in reading about those items which the analysis shows it prints. As a business enterprise, the *Tribune* would not publish material for which there is small demand. We may conclude that the public reads what the newspapers print and that the relative emphasis may be determined by the amount of space devoted to the topics and their location in the paper.

What do the readers of the *Literary Digest* read as revealed by an analysis of the issue of July 19, 1924? Table II shows an emphasis somewhat different from that found in the case of the *Tribune*. The space given to government and politics was more than twice the space given to any other topic. The first pages of the periodical were also devoted to this subject. A more cosmopolitan list of topics, with a saner proportion of emphasis, was found in the

periodical than in the newspaper. From the *Literary Digest* the reader could develop a much larger group consciousness than from the *Tribune*. The magazine is clearly published to appeal to a very different clientèle.

TABLE I

AMOUNT OF SPACE DEVOTED TO VARIOUS SUBJECTS IN THE ISSUE OF THE "CHICAGO DAILY TRIBUNE" FOR JULY 21, 1924

Subject	Number of Column Inches	Number of Column Lines
Accidents	27½	206
Agriculture	12	90
Athletics:		
Baseball	83	622½
Boxing	15	112½
Fishing	4	30
Golf	16	120
Olympic games	84	630
Racing:		
Automobile	9	67½
Boat	20	150
Horse	10½	78¾
Tennis	3½	26¼
Miscellaneous	19	142½
Cartoons:		
Comic	150	.....
Serious	48	.....
Crime:		
Murder	55	412½
Suicide	3	22½
Theft	18	135
Trials	92	690
Miscellaneous	6½	48¾
Earthquakes	1	7½
Editorials	40	300
Fashion	34	255
Fiction	42	315
Government and politics:		
Domestic	86	645
Foreign	69	517½
Health and recreation	28	210
Markets	188	1,410
Photographs	206	.....
Radio	29	217½
Religion	16	120
Society	25	187½
Storms	8½	63¾
Theaters	31	232½
Weather reports	20½	153¾
Wit and humor	13	97½

A study of the content of any magazine published in America will reveal that it is designed, prepared, and distributed for some particular cross-section of society. Periodicals represent every

grade of culture from the crude, sensational, melodramatic yellow sheet to the superb cosmopolitan magazine of unusual literary merit. Between the illiterate and the highly educated there are all kinds of readers: those who read only a weekly newspaper; those who read the daily newspaper and nothing else; newspaper and magazine readers; others who read voraciously everything that comes to their attention; and discriminating, selective readers who, with great care, choose only that which fits their needs.

What do those who make use of the Chicago Public Library read as revealed by the circulation of the books of that institution? Table III shows the information obtained from Carl B. Roden, librarian, with regard to the character of the reading material taken from the library.

TABLE II

AMOUNT OF SPACE DEVOTED TO VARIOUS SUBJECTS IN THE ISSUE OF THE "LITERARY DIGEST" FOR JULY 19, 1924

Subject	Number of Column Inches	Number of Column Lines
Government and politics:		
Domestic	189	1,323
Foreign	71½	500½
Science	60	420
Music, art, letters	63	441
Religion	58	406
Poetry	30	210
Personal glimpses	104	728
Nature	122	854
Investments and finance	40	280
Current events	20	140
Wit and humor	40	280
Personal	14	98

What do the patrons of bookstores read as revealed by an analysis of the sales? For the purpose of answering this question, two of Chicago's prominent bookstores were visited, and interviews were secured with those in charge. The bookstores visited were the Kroch International Book Store and Marshall Field's book department. Although unable to furnish complete statistical data as to the distribution of their sales, they were able to give relative ranking and to offer some interesting comments as to the nature of the demands made by the public. Their sale of fiction exceeds the sale of all other types of literature. There is also a

liberal and apparently growing demand for biography and travel. The sale of children's books is increasing more rapidly than the sale of adult literature. The character of the books demanded appears to be of a higher order than formerly. People of all classes read more than they did and show more discrimination. Women are more interested than men in fiction. People seem to adopt certain fashions in literature just as they do in dress; one style appears to prevail for a season and then pass out of vogue. Popular interests in reading may be determined by ever so slight a suggestion. A preacher may make a favorable comment on a book, and one-tenth of his congregation may call for it at the bookstore during the week; a reporter may unwittingly refer to a book in reporting some event,

TABLE III

CIRCULATION OF THE CHICAGO PUBLIC LIBRARY FOR 1923

SUBJECT	BOOKS DRAWN OUT	
	Number	Percentage
Arts and sciences	258,622	22.8
Literature and language	100,361	8.8
History and biography	64,170	5.7
Travel	32,221	2.8
Theology, etc.	31,953	2.8
Fiction:		
Adult	526,459	46.3
Juvenile	67,712	6.0
Foreign life	54,361	4.8
Total	1,135,859	100.0

and, as a result, the sales of the book may instantly run into the hundreds; an editorial always produces more of a demand than a book review. Those issues which are claiming the public's attention at any time determine in a large measure what people read. A great criminal trial will send hundreds to the bookstore for works on psychology, psychoanalysis, and medicine. A prominent man hunting in a foreign land will lead others to read books on hunting, travel, and foreign countries.

Since booksellers report that many people become interested in a wide range of topics through slight suggestions, the lesson for the school to draw from this generalization is that it can possibly

exercise a much greater influence in directing the reading of the general public than it has ever done. If the attention of the public is directed to a wide variety of books of interest, many will receive suggestions which will result in their reading more extensively.

Since people do read and should read abundantly, it is the business of the school to prepare them to read more intelligently, to read more extensively, and to choose their reading matter with greater discrimination. Thomas H. Briggs says, "Teach pupils to do better the desirable activities they will do anyway; and, second, reveal higher types of activities and make these both desired and to an extent possible."[1] The curriculum-maker should go to the newspapers, the magazines, the public libraries, and the bookstores; find out what people are interested in reading; and then develop a curriculum which will lead them to do better that which their interest will cause them to do anyway.

[1] Thomas H. Briggs, *The Junior High School*, p. 157. Boston: Houghton Mifflin Co., 1920.

SECURING THE MAXIMUM AMOUNT OF WORK FROM EVERY PUPIL

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It is a well-known fact that few children in the public schools work at their maximum level of efficiency. This condition is largely due to the fact that lesson assignments are usually of the same length for every pupil in the class. Teachers have long known, however, that no two children are exactly alike, that there is a wide range in the abilities and capacities possessed by the various pupils, that some children are capable of doing many times the amount of work done by other children in the same length of time, and that many pupils would do much more work than they do if they were given the opportunity.

Every pupil should be held responsible for a certain definite amount of work and in addition to this as much other work as he is capable of doing. The amount of individual effort put forth and the amount of time spent in careful, systematic work and study on a lesson should constitute a much more important criterion for grading a pupil than the actual mastery of an assignment made to the class as a whole. If this plan is adopted, it will be necessary for optional assignments to be made from the text or supplementary material. Pupils who complete the regular assignment five, ten, or fifteen minutes before the close of the period will then find profitable employment in connection with the optional assignment.

While supplementary material is desirable for every pupil, it is especially necessary for the exceptionally bright pupil, the particularly ambitious pupil, and the pupil who for one reason or another finds a given subject easy to master. These pupils need the extra work provided in supplementary material in order that they may be kept mentally busy at profitable work, in order that their insatiable desire for knowledge and accomplishment

may be gratified, and in order that no opportunity may be furnished in the school for the inculcation or acquisition of habits of laziness, carelessness, wasting of time, or day-dreaming.

Provision has been made by many teachers for extra or supplementary work for children of exceptional ability in literature, history, geography, and a few other subjects, but few teachers have realized the necessity of providing supplementary material in arithmetic beyond the occasional problem or example brought in from the home or outside community. Supplementary material is needed in arithmetic to provide extra examples and problems for solution by the exceptionally bright pupil or the particularly ambitious pupil or the pupil who naturally enjoys the work and finds it easy; to provide a variety of explanations, illustrations, and statements of formulas, rules, or principles; to provide a variety of drill exercises; to save the teacher's time in preparing extra drill material; and to provide sufficient work for each pupil in order that he may be kept busy throughout the entire study period.

With these ideas in mind and in order to determine the amount of extra work which would be accomplished by pupils when given the opportunity, an experiment under the direction of the Department of Mathematics of the East Central State Teachers College at Ada, Oklahoma, was carried on in the Training School for a period of six weeks during the last semester of the school year 1923–24. Each pupil in Grades VII and VIII of the junior high school was given an arithmetic text in addition to the regular text. A definite assignment was made each day in the regular text and an optional assignment in the supplementary text. The pupils were required to master the assignment in the regular text; if any time remained, they were urged to solve and hand in as many examples or problems as possible from the supplementary text bearing on the same topic. Attention was called to the fact that the number of extra problems solved would in no way affect the daily or term mark of the pupil except in so far as the extra drill secured would enable the pupil to do better work on the test at the end of the month or quarter. Pupils doing extra work were given recognition by being called upon to solve and explain difficult problems, by being requested to give individual help to other mem-

bers of the class, and by having their names mentioned in connection with the extra work completed.

In order to determine the value of this extra work, the pupils in each class were given the Courtis Standard Research Tests in Arithmetic and the Stone Standardized Reasoning Tests in Arithmetic before and immediately after the six-week period. Exact records were kept of the work of each pupil in these tests and of the number of extra problems solved each day. The results show that practically every pupil in the two classes did some work in addition to the regular assignments. The largest number of extra problems solved by any pupil in the eighth-grade class was 309; in the seventh-grade class, 152. The total number of extra problems solved by the pupils in the eighth-grade class was 2,997. This is an average of 130 extra problems per pupil for the entire six-week period or an average of 4.3 extra problems per pupil each day. The total number of extra problems solved by the pupils in the seventh-grade class was 804, which is an average of 57 problems per pupil for the entire period or an average of 1.9 additional problems per pupil each day. When it is considered that these results represent work done during the time which is ordinarily wasted and that it was in addition to the regular assignments, it is apparent that teachers do not ordinarily secure the maximum amount of work from their pupils.

The extra drill secured by these pupils enabled them to make better records in connection with the standard tests, as is revealed by a study of the scores made before and after the six weeks of supplementary work. In the case of the Stone reasoning tests the pupils in the eighth-grade class improved 12 per cent in speed and 14.3 per cent in accuracy, while the pupils in the seventh-grade class improved 12 per cent in speed and 2.8 per cent in accuracy. The average number of actual points gained per pupil was .63 in speed and 4.1 in accuracy for the eighth-grade class and .5 in speed and 3.7 in accuracy for the seventh-grade class.

With regard to the Courtis Standard Research Tests, the results of the second test show an average improvement in speed and accuracy in the eighth grade of 21 per cent in addition, 4 per cent in subtraction, and 12 per cent in multiplication and an average loss

of 7 per cent in division. In the seventh grade there is an average improvement of 8 per cent in addition, 22 per cent in subtraction, and 16 per cent in multiplication and an average loss of 5 per cent in division.

These very decided increases in speed and accuracy in reasoning and computation in all but two instances are evidence of the value of supplementary work of the right nature. The larger percentage of the extra work was done by the pupils who were most able to carry an additional load, that is, by those pupils having the highest intelligence quotients. There were a few exceptions, however; some pupils with high intelligence quotients did very little extra work, while other pupils with low I.Q.'s did an enormous amount of extra work.

The great problem of the progressive teacher is how to secure a maximum amount of work from each pupil. The method described is an attempt to solve this most vital of all school problems. While the method has been used in connection with classes in arithmetic, it is apparent that equally as gratifying results might be secured through the application of the principles involved to other subjects of the curriculum.

THE IMPROVEMENT OF TEACHERS IN SERVICE

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The problem of the improvement of teachers in service has occupied the attention of school administrators since 1839 when Henry Barnard, then secretary of the State Board of Education of Connecticut, organized a teachers' class or institute at Hartford. Although the problem is an old one, it has not been solved. At least, the need for the improvement of teachers in service still exists and will exist as long as there are schools.

It is scarcely necessary to call attention to the fact that many rural and city school teachers began teaching with a scant knowledge of subject-matter and with still less knowledge of how to teach. This group of unprepared teachers must be trained in service, and it is a difficult group to train, not necessarily because of a lack of desire on their part to become efficient teachers but because of a lack of background. To use an old term, they do not have sufficient "apperceptive" basis. Such teachers may be improved, but it requires time and patience.

Fortunately, the day of the unprepared teacher is passing. The eighth-grade graduate may no longer return to her old school as its teacher the year after her graduation. In Pennsylvania, for example, the greatest forward step, in my opinion, that has been taken within recent years is the setting up of the standard requiring teachers by 1927 to present normal-school diplomas or equivalent credentials. The professionally-minded teachers of the state will, no doubt, welcome the day when uneducated and untrained boys and girls are denied entrance to the classrooms of the state as teachers. After this requirement goes into effect, teaching in Pennsylvania may be ranked as one of the professions.

But even when all of the elementary-school teachers of the state become normal-school or college graduates, there will still be need

for some means of improving them in service. The normal schools and colleges offer practice-teaching, but even the best of these schools can provide only a few semester hours of such work. It is thus evident that some means must be provided after the normal-school or college graduate begins teaching to increase her skill in classroom teaching and management. This cannot be done by leaving the teacher entirely to her own devices. Someone must see to it that the new teacher is making use of the principles learned in normal school and that she is improving in skill.

The old saying that practice makes perfect is one of those dangerous half-truths. A teacher may practice and practice, but if she does not check up her practice with certain principles, the more she practices, the poorer her teaching may become. This point may be illustrated as follows: Last summer a physical-training teacher in one of the large city high schools went to the country for a month's vacation. One day he came upon some boys swimming and, noticing that one boy was sitting on the bank of the creek, said to this boy, "Why aren't you in swimming with the other boys?" The boy replied, "They are practicing for the swimming match to be held in this town in about a month. I can't swim very well, so I am not going to enter the contest." After the physical-training teacher had watched the boys swim for a few minutes, he said to the boy who thought it useless to practice: "Would you like to win the race?" "Yes," said the boy, "but I tell you I can't swim as well as the other boys, so what is the use of trying?" The physical-training teacher replied, "If you will follow my instructions for a few weeks, you can win." He had noticed that the boys who were practicing had acquired many bad habits, and he knew that the more they practiced, the more these habits would handicap them. So he took the boy in charge, and, as a result of careful instruction and supervision, the boy became a good swimmer; to the surprise of himself and the other boys, he won the race. He won because he had practiced under the guidance of a skilled instructor.

Teachers must be trained in service under skilled supervisors. They must also be alert and eager to improve. Social and industrial conditions are changing continually, and the schools must adapt

themselves to these conditions. This is not possible if the teachers are not informed as to the courses of study which are best suited to the changing conditions. Courses of study that may be good today are obsolete tomorrow, and unless teachers realize that certain changes are necessary, they will block any movement on the part of the superintendent when he attempts to impose a new course of study upon them. All of us have witnessed the failure of courses of study approved by the best authorities as well as the failure of the best of textbooks because the teachers already in service had not been educated to the point of understanding the new course of study or the new textbooks.

Our knowledge of the child is continually changing, and the means of education must change accordingly. If the teacher who entered the profession a few years ago has no more knowledge of children now than she had at that time, her methods of teaching are obsolete, or, even if her knowledge of children has increased through her experience with them and she has not changed her methods of teaching, she cannot be classed as a progressive teacher. These are a few of the reasons why provision should be made for the improvement of teachers in service.

But the question is, How may teachers be improved in service? The best way to improve teachers is to provide expert supervision for both city and rural schools. The school system that does not provide such supervision has an unprogressive corps of teachers.

Several years ago the writer asked the superintendent of a small school system whether he did much supervising. He replied that he did not as he had fifty supervisors. By this he meant that each teacher was her own supervisor. It was later discovered that what he had said was true, but it was evident that the superintendent or someone else should have been supervising. He had given test after test to discover how the pupils were progressing, but there the matter stopped. A superintendent or a supervisor should visit classes, because instruction cannot be improved otherwise. Suppose the physical-training teacher mentioned had done nothing but use a stop-watch to determine the time in which his pupil was swimming a hundred yards and how much he was improving from day to day. It took more than a stop-watch to prepare the boy

for the contest. His motions had to be studied and all unnecessary movements eliminated. Superintendents and supervisors cannot depend on mere testing to improve teaching. They must instruct the teachers after the teaching has been diagnosed by means of tests and observations.

If the superintendents of the smaller school systems would have their teachers improve in service, they should acquire the art of supervision and then devote a large part of their time to testing, to classroom visitation, and to conferences. In the larger cities the superintendent cannot find time to supervise, since his attention is almost wholly occupied with matters of administration and since there are so many teachers that it is impossible for him to become acquainted with more than a few of them. He must depend on supervisors and building principals to improve the teachers, but even the superintendent of a large school system should not get too far away from classroom instruction. He should, at least, see that the supervisors and principals are progressive and supervising effectively.

In too many instances, however, building principals are not prepared to supervise, having had no instruction whatever in the principles of supervision. Certain qualifications should be demanded of all applicants for a principalship, such as courses in supervision at some school of education. The state sets up certain requirements for teachers; it should also set up requirements for elementary-school and high-school principals. Each board of education should set up certain standards so that every time a new principal is to be elected teachers unqualified for supervisory work will not be asking to be promoted to the principalship.

Teachers have said, "What is the use of our attending summer schools to get new ideas when we are not permitted to use them?" Several teachers who attended summer school at one of the well-known universities in the Middle West took special work in methods of teaching geography under one of the best teachers of that subject. When these teachers returned to their classrooms in the autumn and began using new methods, the principal said to them, "Forget the stuff you learned at summer school; I'll show you how to teach geography." "Our principal has not had a new idea in a century,"

is what many of the teachers who have attended school within recent years are saying about the principals who have not kept pace with educational thought and practice.

As someone has said, "A school system cannot rise higher than the ideals of the principals." The principal who cannot discuss a teacher's problems with her and offer constructive suggestions is not qualified for the position. He must cause the teacher to do some thinking. Many of the foolish practices that one observes when visiting classes are due to the fact that the teacher does not have any guiding educational principles or else does not know how to apply them when face to face with a real live class. If a teacher does not have a knowledge of the principles of teaching, the fact that she has some problems of her own should provide a motive for seeking a method of solving these problems.

What has been said of supervision as a means of improving city teachers applies with even greater force to the improvement of rural teachers, who are, as a rule, less well prepared by both training and experience than city teachers and are therefore more in need of supervision. They also have many more problems of classroom organization and management confronting them, especially if they teach in a one- or a two-room school. If rural teachers are to be improved in service, more adequate supervision must be provided.

Every superintendent, whether he supervises a township, county, or a city school system, may find many means of improving his teachers, such as individual conferences and grade and general meetings. The county superintendent who has five hundred teachers under his supervision should have a larger staff of assistants than the city superintendent who has the same number of teachers.

One of the means of improving teachers in service is that of having the teachers work on some project, such as the preparation of courses of study in detail. This plan for the preparation of courses of study is followed in Washington, Boston, and many other cities. If the project of preparing a course of study in arithmetic, for example, is assigned to a group of teachers, they will be kept busy for a year at least on a study that will have practical application. They will have to consult all of the literature on the

subject and hold many conferences. After the course has been prepared and approved by the superintendent of schools, every teacher who had part in its preparation will be a better teacher of arithmetic. The old way of preparing a course of study was for the superintendent to prepare it and order his teachers to follow it. Now committees of teachers in many of our cities are working on courses of study and submitting them to the superintendents and supervisors for their approval.

The superintendent who makes use of his teachers in the preparation of courses of study is providing a real motive for their improvement. This plan is better than that of assigning a book to read, for the teachers who work on courses of study will find it necessary to read many books.

Teachers' institutes have long been considered a means of improving teachers in service, but unless great changes are made in conducting such institutes, their value may be questioned. It is doubtful whether the time has come to abandon them altogether. They may still be made to contribute to the training of teachers, but their value depends on the extent to which they are organized for instruction rather than for entertainment.

Summer-school and extension courses must not be overlooked. That summer schools are becoming popular as a means of improving teachers is evident from the following figures: Of 113,864 teachers in six states—Kentucky, North Carolina, Oklahoma, Pennsylvania, South Dakota, and West Virginia—in 1922, 73,699, or 65 per cent, attended summer school that year.

The professional interest that the summer-school and extension movement has developed is a promise for better things. It has stimulated the development of efficiency in individuals, the results of which have been increased salaries, promotions of various kinds, and a marked improvement in the spirit of the teaching force in general.

The opportunity for summer study and extension work has the further advantage of making it possible for states to raise the standard of teacher-training without imposing too great a hardship on teachers of ability whose training has been inadequate.

The plan of granting credit for attendance at summer school

has been adopted by many boards of education. A bonus is sometimes given for this activity, usually from $2.50 to $6 a month, which is added to the salary the year following the course, or a bonus of from $25 to $60 and in a few instances $100. In some cases an advance on the salary schedule is granted in addition to the normal advance.

Another plan coming into favor for the improvement of teachers in service is that of granting a year's leave of absence for study or travel after about seven years of service in the school system. In some instances a year's leave is granted on half-pay. Several superintendents say that this plan is one of the best and that not a few teachers take advantage of it. Superintendent A. H. Hill, of Richmond, Virginia, reports that each year from five to ten teachers are on leave of absence for study. Assistant Superintendent J. P. O'Hern, of Rochester, New York, writes as follows regarding the means employed by the Rochester school board to improve the teachers already employed:

> The sabbatical year has been in operation fifteen years, the summer-school plan ten years, and the university-extension plan five years. The average number of teachers taking advantage of the sabbatical-year plan is approximately twelve; the number taking advantage of the summer-school plan is between three hundred and four hundred; and the number taking university work every year is in the neighborhood of five hundred. We have teachers' institutes every year, and different divisions of the teaching body have study clubs. The Rochester Teachers' Association provides a course of lectures, the board of education contributing $200 annually for this course. The first three days of the year are devoted to teachers' institutes. Rochester spends approximately $30,000 every year for teacher-training along the lines mentioned and considers it the best investment imaginable in teacher-training.

These are some of the means employed in the training of teachers in service. But let us eliminate one of the reasons why teachers should be trained in service, namely, that they are unprepared, by requiring all those entering the profession to be normal-school or college graduates who have had courses in education.

Educational Writings

REVIEWS AND BOOK NOTES

Another textbook in educational sociology.—One of the most characteristic tendencies in education at the present time is the recognition of the social point of view. To be sure, this recognition is often implicit rather than explicit in educational writings and thought, but the ferment is nevertheless at work and will ultimately give to the sociologist a place equal in importance to that accorded the psychologist. The almost exclusive emphasis on educational psychology during the past generation is to be explained in terms of the early evolution of the science rather than in terms of the needs of education. Educational policies and programs must be derived no less from a study of the school in its relations to society than from a study of the nature and learning powers of the individual.

Whether the recognition of the contributions of the sociologist is to come through the establishment of departments of educational sociology in our teacher-training institutions is today an unanswered question. The final solution of this problem will certainly depend, in no small measure, on the clearness with which the educational sociologist views his task and the effectiveness with which he performs his labors. It is possible, of course, that the work which should logically fall upon the shoulders of the educational sociologist will continue to be done by the student of school administration and by the educational historian. But the arguments which have served to create separate departments of educational psychology may be applied with equal force to educational sociology.

In a recent volume[1] we have another systematic attempt to define educational sociology and to mark out the field which this science should cultivate. Mr. Peters says:

> Educational sociology should not be construed as merely sociology for teachers. It should not seek to study sociology from the standpoint of education but rather to study education in its sociological aspects. The educational psychologist shows how education should be adjusted to the needs of the individual; the educational sociologist should show the adjustment of education to the needs of society and the bearing of group phenomena upon the educational procedures by which these needs must be met. Thus educational sociology is a branch of education even more than it is a branch of sociology [p. vi].

[1] Charles C. Peters, *Foundations of Educational Sociology.* New York: Macmillan Co., 1924. Pp. x+448.

The reviewer is in practically complete agreement with this point of view. He would, however, be inclined to emphasize somewhat more than does Mr. Peters the contention that educational sociology should not aim to compete in any sense with the ordinary courses in sociology. He would insist not that educational sociology should not be construed as *merely* sociology for teachers but rather that educational sociology should *certainly* not be so construed. In addition to being trained in educational sociology, every teacher should be made thoroughly acquainted with the nature and problems of society through a study of sociology.

The volume is divided into two parts. The first part presents the "Principles of Educational Sociology," and the second part discusses "Methods of Determining the Objectives of School Education." In Part I the author outlines in detail what he considers the province of educational sociology. He gives attention to the social function of education, the relation of the school to society, and the contributions of the informal educational agencies, such as the family and the church. This naturally leads him into a consideration of the curriculum and the problems of curriculum-making. While there are certain aspects of the subject which do not receive attention, Mr. Peters has, in the reviewer's estimation, made a wise selection of topics.

The second part of the volume deals, as we have noted, with methods of determining objectives. It also gives the methods and results of several investigations by the author into the problem of objectives. Although Mr. Peters apparently has not borrowed from such investigators as Bobbitt, Charters, and Snedden, his work is reminiscent of theirs. The discussion is stimulating, but the reviewer is convinced that the methods suggested cannot provide all of the guidance required in the determination of objectives. It would seem that those interested in scientific curriculum-making will have to give more explicit recognition to the formulation of a sound educational and social philosophy than they are inclined to concede today. A working relation between science and philosophy will have to be consummated if either is to be fertile to the maximum degree.

The book is well organized for classroom use; its materials are presented in an interesting way; and its content indicates familiarity with the literature of the subject. While it necessarily shows the immaturity of the science of educational sociology, if this study may be thus styled, it represents a serious contribution to educational thinking. The student of education, whether engaged in the practical or the theoretical field, will find himself well repaid for the time spent in reading this publication.

GEORGE S. COUNTS

YALE UNIVERSITY

A method of analyzing school costs.—Superintendents of schools and students of school finance will find unusually informing and suggestive material in a study

of educational finance in certain cities in Illinois by Nelson B. Henry.[1] The work appears as Volume XII of the Report of the Educational Finance Inquiry Commission. The objects of the study were (1) to present estimates of the total annual cost of providing public education in modern city school systems of recognized merit, (2) to distribute annual costs to the various types of school units and services, and (3) to estimate the probable unit and total costs of maintaining the same program of public education in Illinois cities in the future. Current expenses only were considered in the study, no account being taken of costs due to the acquisition of new capital, new construction, or debt service.

With these objects in view, the records and accounts of twelve Illinois cities with populations of from 10,000 to 100,000 were carefully examined on the ground by a member of the Illinois survey staff. Items of cost were distributed to the fundamental enterprises, such as the high school and the elementary school, and to the following special enterprises: junior college, kindergarten, continuation school, special school, evening school, fresh-air school, ungraded rooms, non-English school, and summer school. The percentage of total expenses, including distributed general charges, devoted to the high school in the seven city systems supporting four-year high schools ranges from 22 to approximately 42. The median percentage is 28.93. The cost per pupil in the ten regular high schools ranges from $74.98 to $172.42, with the median at about $112. More money proportionately is devoted to secondary education under the township form of administration than under the single district form of administration. Similar studies were made of the other school enterprises, and an ingenious method is presented for comparing the per pupil cost of such special enterprises as the continuation school with the per pupil cost of the fundamental enterprises.

During the foregoing analysis there were brought to light several important general principles concerning the distribution of costs. The following principle, which is one of the most useful, will serve as an example: The total current expense of any one of the fundamental enterprises can be estimated with approximate accuracy by taking that proportion of the total current expense of the school system which the salary cost of instruction of the enterprise in question is of the total salary cost of instruction. In other words, the total current expense of any fundamental enterprise can be estimated safely if the current expense of the entire system and the teaching costs of each of the enterprises are known.

The items of cost were distributed also according to the standard types of school service. After a study of the tabulation of the expenses classified as "general control," the author concludes that "6 per cent is a reasonably sufficient portion of current costs to be devoted to general administrative service" (p. 50).

[1] Nelson B. Henry, *A Study of Public School Costs in Illinois Cities*. Report of the Educational Finance Inquiry Commission, Vol. XII. New York: Macmillan Co., 1924. Pp. xii+82.

Tabulations are presented showing the percentages of direct charges devoted to instruction, operation, and maintenance in the traditional elementary school and high school and also in the six-year elementary school, the junior high school, and the senior high school. The author points out the fact that the junior high school plan of organization, which is found in two of the twelve cities, focuses a larger percentage of total expenses on the service of instruction than does the traditional plan.

On account of the widespread interest in the large and increasing sums of money which are devoted to secondary education, an intensive study was made of high-school costs. Data are presented which show the departmental costs per pupil in each of the cities studied. The more recently added departments were found to be using decidedly greater sums of money per pupil than the older departments. A further analysis of the situation, however, leads the author to the very significant conclusion that "the high-school program is being enriched with relatively expensive departments at comparatively little added cost to the cost of the school as a whole" (p. 65).

In the last division of the study the author attempts to estimate the probable future cost of maintaining the school systems of all Illinois cities with populations of from 10,000 to 100,000. The estimate is based on the very fundamental and significant assumption that in all of the cities each school enterprise will tend to be carried eventually to that stage of development which it has reached in the city where it finds its highest expression at the present time. In this case, as in the others described, the author presents an array of figures which represent the costs in dollars and cents of the enterprises considered.

These data are informing to all school officials and valuable in a special way to the school officials of Illinois and neighboring states, particularly at the present time. The more important and more permanent contribution of this study, however, lies in the methods of analyzing costs which the author has developed. These methods will be examined with interest and, with such modifications as are demanded by local conditions, can be used with profit in all parts of the country by high-school principals, superintendents, and students of school finance who are vitally concerned with the pressing problem of cost accounting in the public schools.

PAUL W. TERRY

UNIVERSITY OF NORTH CAROLINA

How to study, think, and read.—The Mind at Work[1] has several purposes, one of which is to lower the age at which children learn to read. For many years it has been a matter of common knowledge that few persons learn to read until the onset of adulthood if, indeed, they learn then. The extent to which an individual assimilates and sets to work such principles as Professor Lyman's book unfolds will measure that individual's skill in reading.

[1] R. L. Lyman, *The Mind at Work*. Chicago: Scott, Foresman & Co., 1924. Pp. 350. $1.60.

This book, which contains in convenient form "standard readings on the activities of studying, thinking, and reading," is much more than a source book. Each chapter contains a simple analysis of certain desirable mental habits together with superior directions for the cultivation of these habits while reading and studying the source materials. Four ways of using the book are recommended by the author: "(1) It may be substituted for one of the several classics which constitute a year's work in most English classes. (2) It may supplement the customary study of essays, orations, and addresses. (3) It may be used as a basic textbook in special courses designed to introduce students to effective methods of study. (4) It may be taken up once a week throughout a semester as the basis of direct lessons in the mental activities necessary for successful study both within school and without" (p. 4). Portions of the book which especially fit it for use in English classes are the passages from James, Bennett, Eliot, Bryce, Bangs, and Mabie. Quotations from such writers as McMurry, Dewey, and Kitson, together with Professor Lyman's own contributions, fit the book especially for use in training pupils for effective study.

Few chapters in educational literature deal with more important matters than chapter v of this book. In this chapter is set forth the reader's plain duty of helping the writer by supplementing what is said by what is implied—in other words, reading between the lines. The plan of this chapter is the same as that of the other chapters. It opens with a statement of what is meant by supplementing an author's thought. This statement contains a series of passages from Ruskin, Bok, and Hall-Quest carefully linked to the problem under discussion. Then follows a treatment of three points in the art of reading: "Keep the mind alert, constantly asking questions of the writer." "Help the writer by recalling experiences of your own which corroborate his statements." "Help the writer by thinking of examples of your own which differ from those he writes about." The discussions of these points are made concrete and practical by illustrations of exactly what is meant by each point. Then follows an eleven-page passage from J. B. Kerfoot's *How to Read*, with suggestions which should effectively direct the pupil's reading of the passage. This quotation is followed by a division entitled, "Class Activities." Among the activities suggested are the following: "Place several little 'Stop, Look, Listen' signs on the margins of Kerfoot's article. Stop, look, and listen to what is going on in your own mind at any of these signs. Write down what you are contributing to the thought at three of these signs." "It is said that certain Eskimos visiting London saw nothing of interest in the streets of the city. Explain why this might be true." "Prepare a set of vital questions which you would ask the author of your next selection in the literature class. If you prefer, choose a reading you must do for one of your other classes." The remaining divisions of the chapter deal with finding life in literature, translating literature into life, and using literature as an outlet. The chapter closes with "additional reading projects" in the form of a bibliography accompanied by engaging suggestions to the pupil.

The chapter just reviewed is but one of seven. The other chapters are en-

titled, "The Nature of Study and of Study Habits," "Useful Habits of Work in Library and School," "Thinking and Learning to Think," "Reading to Understand and Remember," "Evaluating What We Read and Hear," and "Reading for Enjoyment."

The Mind at Work should appeal to high-school teachers, normal-school teachers, and others as a source of excellent lessons "in mental truth-seeking and truth-telling."

WILLIS L. UHL

UNIVERSITY OF WISCONSIN

Methods of teaching.—Books on general methods of teaching have been appearing in large numbers in the last two or three years after a lull following the publication of the two excellent volumes by Parker and Colvin in 1915 and 1917, respectively. Books on general methods were produced by Foster and Turner in 1921, by Holley, Nutt, Miller, and Thomas in 1922, and by Mead and Burton in 1923.

Among the 1924 books on methods is one[1] which deals especially with the elementary school. It is written by three school men, two of whom are nationally known for their educational progressiveness and clear insight into the classroom situation. It is organized in three parts. Part I is intended to give a point of view and to lay before the reader an outline of the worthy practical aims of education, certain essentials of a good teaching situation, and the new point of view from which the curriculum and curriculum-making are regarded. Part II deals with the "nature of modern classroom procedure." Topics treated in this section are "Socializing School Work," "Motivating School Work," "The Project Method of Teaching," "The Appreciation Lesson," "The Drill Lesson," and "Natural Child Activities in the Classroom." Part III, "The Organization of Classroom Procedure in Accordance with Modern Methods," deals more directly with active classroom management. It includes chapters on "Planning the Work," "The School Program," "The Assignment," "Training Pupils to Study," "Use of Visual Aid," "Questioning," "The Review," and "Scientific Tests and Their Use."

While the arrangement of the material within the three major divisions is not logical in all instances, the general organization is good. The list of topics treated, as indicated by the chapter headings, is certainly inviting. There has been a clearly recognized need for a treatment of method which gives under one cover the essentials of the new teaching movements and devices—teaching how to study, the socialized recitation, the problem method, the project method, the use of tests and measurements, adjustments to individual differences, visual instruction, etc.—as well as the essentials of the less novel devices and methods. But the reader who expects a thorough treatment of these topics in this book will be disappointed. For example, the chapter on "Motivating School Work"

[1] Harry B. Wilson, George C. Kyte, and Herbert G. Lull, *Modern Methods in Teaching*. Newark, New Jersey: Silver, Burdett & Co., 1924. Pp. vi+286. $1.64.

is given ten pages; "The Project Method of Teaching" is given eleven pages; and "Training Pupils to Study" covers a little more than nine pages.

The book attempts a discussion of a rich and promising program in 273 pages. The authors are eminently prepared by experience and demonstrated ability to present a much better treatment of their topics than appears in this book. The titles and chapter headings promise more than the discussions fulfil.

By its nature, the book is limited to use by those who have neither the time nor the inclination to study thoroughly the new teaching methods. As an introduction to a thorough study, it would serve as a good outline. The illustrations and applications are drawn almost entirely from the elementary-school subjects and will prove especially useful to the reader who is an elementary-school teacher. The book is simply and clearly written. It is admirably organized within chapters. A noteworthy feature is the point-by-point contrast drawn between socialized school work and formal school work, as represented on page 79 by a list of twenty-nine pairs of opposite characteristics. The book emphasizes the new importance attached to the attitude of the learner, the relation of interest to effort and results, but makes little attempt to justify the new methods psychologically or to supply experimental evidence.

While the book will undoubtedly be read with profit by thousands of teachers, the reviewer regrets that the topics are not treated more thoroughly. Many teachers seeking to master new methods will fail to find in this book the complete treatment they should have.

HARL R. DOUGLASS

UNIVERSITY OF OREGON

An easy introduction to educational measurement.—The earlier books on tests exhibited something of the encyclopedic tendency in the organization of their material. They resembled catalogues, and they suffered from varying degrees of superficiality. More recently the texts in this field have shown a promising tendency to isolate and attack seriously the fundamental problems of educational measurement. As educational treatises, the later books represent an advance in scientific respectability, but they also represent an advance in technicality and difficulty beyond the comprehension of most beginners in the study of educational measurement.

In the preparation of his book[1] on educational measurement Edward A. Lincoln seemed to have two purposes in mind: (1) to treat the principles of measurement within the grasp of teachers in service and (2) to provide a means of overcoming the familiar library deficiency in extension courses. The leading topics in the book have been chosen with good judgment. Significant problems have been selected for discussion, and these problems have been simply and clearly presented. The brevity of the treatment as a whole can be inferred from the fact that there are only 114 pages in the body of the text. This material

[1] Edward A. Lincoln, *Beginnings in Educational Measurement.* Philadelphia: J. B. Lippincott Co., 1924. Pp. 152.

is supplemented by a series of helpful lesson plans which are intended for use in connection with the various chapters.

The author has accomplished in a commendable way what he set out to do. The book will no doubt be illuminating and helpful to many classroom teachers. The shortcomings which it has are traceable, in the main, to an attempt at brevity and simplicity. In certain chapters brevity has resulted in inadequacy and simplicity in oversimplification; the former is evident in the chapter on achievement tests, the latter in such procedures as assuming the median to be the mid-point of the interval in which the median is located. Proper determination of the median is not beyond the comprehension of the ordinary teacher in service.

The book might be improved, in the opinion of the reviewer, by giving the chapter on achievement tests a title consistent with the table of contents, by distinguishing properly the leading kinds of instruments for the measurement of achievement, and by introducing effective illustrative material, as was done in the chapter on intelligence tests.

The reviewer recommends the book where a primer on educational measurement is needed.

FREDERICK S. BREED

New reading material for Grades VII and VIII.—One of the most significant "signs of the times" in the teaching of literature is the new-style collection of readings.

Until recently, when—usually at the instigation of some publisher—an "authority in English" felt an urge to compile a book of prose and poetry for young people, he rushed into his library and began to ransack the classics and the classic anthologies. He wanted "representatives specimens" of all of the great authors, all of the periods of literary history, and all of the literary types.

The present reviewer has no means of knowing how the editors of *Reading and Living*[1] proceeded in compiling this series, but he will warrant a guess that first they found out, by means of observation, experience, and glances backward into their own adolescence, what children of junior high school age are most interested in and like most to read about, and that then—and not till then—they roamed far and wide through the rich and spacious land of books, selecting and collecting their material. In the case of the modern maker of reading books for young people, it is not the question, "Here is literature; what shall I select from it?" but rather, "Here are young people; what shall I select for them?"

The reviewer has not seen any collection of readings for young people which comes more nearly satisfying every normal youthful interest than does *Reading and Living*. Book I has six sections: "Making Homes," "Going to School," "Finding Enjoyment," "Providing Safety," "Seeking New Homes," and "Making the Best of One's Self." Each of these main topics is made up of smaller

[1] H. C. Hill and R. L. Lyman, *Reading and Living*. Book I, pp. xviii+496; Book II, pp. xxii+518. New York: Charles Scribner's Sons, 1924.

units. "Making Homes," for example, is subdivided into "The Dwelling-Place," "The Home Circle," "Glimpses into a Few Homes," and "Family Ties and Home Influences." Under each of these subtopics are from three to ten selections: poems, stories, sketches, and articles. Book II follows a similar plan —scores of specimens running the gamut of the fundamental human activities and interests.

Much of the material is drawn from contemporary writing. Some of it, if the reviewer may set himself up in judgment, is not literature; some of it is not even first-rate journalism. However, the editors of *Reading and Living* were not, it may be assumed, looking primarily for literature: the title indicates that. They were searching for reading material which would interest boys and girls. Here it is—the boldest, the most catholic, and the most promising collection which the reviewer has seen.

The editors manifest their knowledge of child life, not only in their choice of readings, but also in their suggestions and directions to guide the reader. At the beginning of each large section of the books is a concise, carefully chosen list of books—juvenile books but not juvenilized—bearing on the main topic, from which list each child is to select one book to read while the class is working through the selections in the group. After each specimen is a list of "class activities," questions on the specimen—unfortunately, too similar to the old class "exercises." After the "units" are questions for discussion and review and very practical suggestions for reading designed to train in rapid, thoughtful silent reading.

WALTER BARNES

STATE NORMAL SCHOOL
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More tests and measurements.—Another book[1] on measuring results in education has appeared. It aims "to interpret the general principles of measurement for the average elementary-school teacher" (p. 7). It buries the individual pupil with averages, medians, and normal curves of distribution. When will a genius appear in the guise of an author who will be willing to sacrifice his audience of expert colleagues to bring educational measurements out of the clouds of statistical theory down to the understanding of elementary-school teachers? Teachers are clamoring for expert guidance in how to use standard tests to improve the instruction of backward Mary, slow John, erratic James, and rapid but careless Ann. Teachers are struggling with mean deviations, P.E.'s, I.Q.'s, quartiles, T scores, B scores, sigmas, and coefficients of correlation.

To be explicit, there are twenty-one chapters in the volume, covering 470 pages, exclusive of preliminaries and index. Eight chapters, 41 per cent of the text by pages, deal with statistical methods and theory. Two chapters, 9 per cent of the text, discuss the theory of testing. One chapter of twenty-five pages,

[1] Marion Rex Trabue, *Measuring Results in Education*. Chicago: American Book Co., 1924. Pp. 492.

5 per cent of the text, makes the time-old attack on the traditional school mark. Six chapters, 28 per cent of the text, are devoted to descriptions of selected tests in arithmetic, composition, handwriting, spelling, and reading. Two chapters, 8 per cent of the text, describe the use, value, and application of certain intelligence tests. One chapter, 5 per cent of the text, sketches the history of educational measurements; and the final chapter of nineteen pages, 4 per cent of the text, makes predictions as to the future of measurements. Even here the author devotes three of the last four pages of the chapter to a statistical explanation of how to distribute marks according to the normal frequency curve by using the P.E. and a table of P.E. values.

An examination of the index shows that much space has been devoted to such topics as percentile curve, seriation, decile point, coefficient of correlation, frequency tables, median deviation, quartile deviation, root-mean-square deviation, derivation of scale values, dispersion, P.E., subjective versus objective scales, normal surface of frequency, principle of the dominant variable, zero points, histogram, sigma, and basis for measuring relative difficulty. On the other hand, such terms as diagnostic tests, informal tests, remedial instruction, practice tests, recurring errors, diagnosis, and individual differences do not appear in the index. Only one diagnostic test is mentioned in the book, although thirty-six different tests and scales are explicitly referred to and described. That the writer recognizes the value of diagnostic tests is indicated by the following quotation from the last chapter of the book: "As interest in the measurement of results passes from the administrative officers to the teachers, there will be an increasing demand for specific tests to reveal facts regarding various definite phases of the abilities of each pupil" (p. 469).

The book is organized in a curious fashion. The statistical chapters are inserted between chapters which describe tests. Perhaps this plan will serve to make the statistics more interesting to the reader. It does have the advantage of making the discussion practical and concrete by drawing examples from the flanking descriptions of the different tests. The unusual organization of material is carried to an extent which leaves the reviewer at a loss to explain the logic of presenting a chapter on "Classification of Mental Tests" between a chapter on "Tests of Power in Arithmetic" and a chapter on "Measuring Ability to Read."

Professor Trabue's statement of educational measurements is straightforward, practical, and sound. While the book might be more systematic, it compares very favorably with rival texts. The student of education will find in it many excellent suggestions and criticisms of educational tests. One worthy feature of the text is the excellent manner in which practical and theoretical considerations are interwoven. Many of the hazy points concerning statistical methods are cleared up by the author's treatment. Appended to each chapter are questions, exercises, and references for further reading and study. The book should be useful as a text in courses in educational tests and measurements.

F. Dean McClusky

University of Illinois

Report of practices in an experimental school.—In 1913 Caroline Pratt established in New York City a school for children of preschool age for the purpose of discovering better forms of education for such children. Her plan was that the school should be experimental in character, that its activities should be determined by its findings, and that the spontaneous interest of children should, so far as possible, indicate the procedure of the school. The name of the school, "The Play School," has since been changed to "The City and Country School," and the scope of its activities has been somewhat enlarged. The school has been recognized as a definite center for certain valuable experiments, and many teachers are undoubtedly familiar with some of its contributions. Further information as to its practices is now available in a book[1] edited by Miss Pratt.

The book is divided into two main sections. The first section, made up of fifty-four pages, discusses in considerable detail the principles and purposes which underlie the City and Country School. As indicative of the attitude of this school, the following quotation relating to the subject of reading is of interest:

> Learning to read has been put off deliberately until the children are seven. We are not sure that this is the place for it. It is a complicated and difficult technique which may be found to belong later on in our school work. That we can successfully teach it at seven proves nothing. It is often taught at four. What helps to guide us in our decisions regarding any new technique to be added to programs is the use which can be made of it. In considering the teaching of reading, for example, we have to face the question of its use. Suppose children of seven to be able to read fluently, as many are. What have we in literature to expose them to? They can and do in short order exhaust the supply of what we consider good for them. We have started something which we cannot control, and unwarrantable adult problems are opened up to children, with nothing in their experience to help them to understand them. If the problems escape their notice, the evil is equally great, for they form habits of reading without understanding [p. 28].

As indicated in this quotation, one of the essential ideas in this school is to make education fit and parallel the experiences of the children. In the introductory section of the book there are other examples showing how history and geography are likewise correlated with the interest and experience of the children.

The second section of the book, which includes approximately 250 pages, gives a detailed record of the work of the school for one year. This record is given month by month and subject by subject and furnishes a large amount of factual information regarding the procedure of the school. The material in this section has been grouped around four general types of activities: (1) play experiences, including such activities as organized games, play with large materials, both indoors and outdoors, and drawing and painting; (2) practical experiences, including shopwork, sewing, cooking, and clay modeling; (3) activities involving specialized training, such as reading, language, spelling, writing, and number; and (4) activities the chief purpose of which is the organization of informa-

[1] *Experimental Practice in the City and Country School.* Edited by Caroline Pratt. New York: E. P. Dutton & Co., 1924. Pp. viii+302. $2.50.

tion, such as trips, discussions, stories, dramatization, and science studies. Although the activities described are experimental in character, they are based on the experiences of approximately a decade and represent, in many cases, significant departures from the traditional activities of the public school. The book is well worth reading.

G. T. BUSWELL

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